Access DB# 90946

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: KARLA MOORE Examiner #: 78968 Date: 4/8/03
Art Unit: 1763 Phone Number 305-3142 Serial Number: 09/823058
Mail Box and Bldg/Room Location: 10E16 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: STOCK/TRANSFER VESSEL FOR SEMICONDUCTOR SUBSTRATE

Inventors (please provide full names): TATSUYA SUZUKI

Earliest Priority Filing Date: 04/03/00

****For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.***

LOOKING FOR TEACHINGS OF USING A MATERIAL WITH A Si-F bond ~~AS~~ AN ADSORBENT/ABSORBENT.

****

STAFF USE ONLY		Type of Search		Vendors and cost where applicable	
Searcher:	K. Fuller	NA Sequence (#)		STN	✓
Searcher Phone #:		AA Sequence (#)		Dialog	
Searcher Location:		Structure (#)	/	Questel/Orbit	
Date Searcher Picked Up:		Bibliographic	✓	Dr.Link	
Date Completed:	4/8/03	Litigation		Lexis/Nexis	
Searcher Prep & Review Time:	20	Fulltext		Sequence Systems	
Clerical Prep Time:		Patent Family		WWW/Internet	
Online Time:	38	Other		Other (specify)	

PTO-1590 (8-01)

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=> FILE HCAPLUS
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FILE COVERS 1907 - 8 Apr 2003  VOL 138 ISS 15
FILE LAST UPDATED: 7 Apr 2003  (20030407/ED)

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.
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Compounds with Si and F

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=> D QUE L13
L3        51911 SEA FILE=REGISTRY ABB=ON  (SI(L)F)/ELS
L4        60272 SEA FILE=HCAPLUS ABB=ON  L3
L5          339 SEA FILE=HCAPLUS ABB=ON  L4(L)(ADSORB? OR ABSORB?)
L6           10 SEA FILE=HCAPLUS ABB=ON  L5 AND SEMICONDUCTOR?
L7         1878 SEA FILE=HCAPLUS ABB=ON  SIF OR SI(W)F OR SILICON(W)FLOUR?
L8          101 SEA FILE=HCAPLUS ABB=ON  L7 AND (ADSORB? OR ABSORB?)
L9            4 SEA FILE=HCAPLUS ABB=ON  L8 AND SEMICONDUCTOR?
L10        2427 SEA FILE=HCAPLUS ABB=ON  SI(1A)F
L11         128 SEA FILE=HCAPLUS ABB=ON  L10 AND (ADSORB? OR ABSORB?)
L12           8 SEA FILE=HCAPLUS ABB=ON  L11 AND SEMICONDUCTOR?
L13          18 SEA FILE=HCAPLUS ABB=ON  L6 OR L9 OR L12

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MOST RECENT DERWENT UPDATE:      200323          <200323/DW>
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=> D QUE L14
L7          1878 SEA FILE=HCAPLUS ABB=ON  SIF OR SI(W)F OR SILICON(W)FLOUR?
L8           101 SEA FILE=HCAPLUS ABB=ON  L7 AND (ADSORB? OR ABSORB?)
L9             4 SEA FILE=HCAPLUS ABB=ON  L8 AND SEMICONDUCTOR?
L10         2427 SEA FILE=HCAPLUS ABB=ON  SI(1A)F
L11          128 SEA FILE=HCAPLUS ABB=ON  L10 AND (ADSORB? OR ABSORB?)
L12            8 SEA FILE=HCAPLUS ABB=ON  L11 AND SEMICONDUCTOR?
L14            3 SEA FILE=WPIX ABB=ON  L9 OR L12

=> FILE JICST
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=> D QUE L15
L7          1878 SEA FILE=HCAPLUS ABB=ON  SIF OR SI(W)F OR SILICON(W)FLOUR?
L8           101 SEA FILE=HCAPLUS ABB=ON  L7 AND (ADSORB? OR ABSORB?)
L9             4 SEA FILE=HCAPLUS ABB=ON  L8 AND SEMICONDUCTOR?
L10         2427 SEA FILE=HCAPLUS ABB=ON  SI(1A)F
L11          128 SEA FILE=HCAPLUS ABB=ON  L10 AND (ADSORB? OR ABSORB?)
L12            8 SEA FILE=HCAPLUS ABB=ON  L11 AND SEMICONDUCTOR?
L15            6 SEA FILE=JICST-EPLUS ABB=ON  L9 OR L12

=> FILE JAPIO
FILE 'JAPIO' ENTERED AT 10:49:15 ON 08 APR 2003
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FILE COVERS APR 1973 TO NOVEMBER 29, 2002

<<< GRAPHIC IMAGES AVAILABLE >>>

=> D QUE L16
L7          1878 SEA FILE=HCAPLUS ABB=ON  SIF OR SI(W)F OR SILICON(W)FLOUR?
L8           101 SEA FILE=HCAPLUS ABB=ON  L7 AND (ADSORB? OR ABSORB?)
L9             4 SEA FILE=HCAPLUS ABB=ON  L8 AND SEMICONDUCTOR?
L10         2427 SEA FILE=HCAPLUS ABB=ON  SI(1A)F
L11          128 SEA FILE=HCAPLUS ABB=ON  L10 AND (ADSORB? OR ABSORB?)
L12            8 SEA FILE=HCAPLUS ABB=ON  L11 AND SEMICONDUCTOR?
L16           14 SEA FILE=JAPIO ABB=ON  L9 OR L12

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<<< NEW DISPLAY FORMAT 'SCAN' AVAILABLE NOW >>>

=> D QUE L17
L7          1878 SEA FILE=HCAPLUS ABB=ON  SIF OR SI(W)F OR SILICON(W)FLOUR?
L8           101 SEA FILE=HCAPLUS ABB=ON  L7 AND (ADSORB? OR ABSORB?)
L9             4 SEA FILE=HCAPLUS ABB=ON  L8 AND SEMICONDUCTOR?
L10         2427 SEA FILE=HCAPLUS ABB=ON  SI(1A)F
L11          128 SEA FILE=HCAPLUS ABB=ON  L10 AND (ADSORB? OR ABSORB?)
L12            8 SEA FILE=HCAPLUS ABB=ON  L11 AND SEMICONDUCTOR?
L17            3 SEA FILE=COMPENDEX ABB=ON  L9 OR L12

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<<< NEW DISPLAY FORMAT 'SCAN' AVAILABLE NOW >>>

=> D QUE L24
L7          1878 SEA FILE=HCAPLUS ABB=ON  SIF OR SI(W)F OR SILICON(W)FLOUR?
L8           101 SEA FILE=HCAPLUS ABB=ON  L7 AND (ADSORB? OR ABSORB?)
L9             4 SEA FILE=HCAPLUS ABB=ON  L8 AND SEMICONDUCTOR?
L10         2427 SEA FILE=HCAPLUS ABB=ON  SI(1A)F
L11          128 SEA FILE=HCAPLUS ABB=ON  L10 AND (ADSORB? OR ABSORB?)
L12            8 SEA FILE=HCAPLUS ABB=ON  L11 AND SEMICONDUCTOR?
L18           40 SEA FILE=INSPEC ABB=ON  L9 OR L12
L19         2121 SEA FILE=INSPEC ABB=ON  L7 OR L10
L22            8 SEA FILE=INSPEC ABB=ON  L19(3A)(ABSORB? OR ADSORB?)
L24            3 SEA FILE=INSPEC ABB=ON  L18 AND L22

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FILE COVERS 1964 TO DATE.

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   THE BASIC INDEX (/BI) >>>

=> D QUE L25
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L7          1878 SEA FILE=HCAPLUS ABB=ON  SIF OR SI(W)F OR SILICON(W)FLOUR?
L8           101 SEA FILE=HCAPLUS ABB=ON  L7 AND (ADSORB? OR ABSORB?)
L9             4 SEA FILE=HCAPLUS ABB=ON  L8 AND SEMICONDUCTOR?
L10         2427 SEA FILE=HCAPLUS ABB=ON  SI(1A)F
L11          128 SEA FILE=HCAPLUS ABB=ON  L10 AND (ADSORB? OR ABSORB?)
L12            8 SEA FILE=HCAPLUS ABB=ON  L11 AND SEMICONDUCTOR?
L25            1 SEA FILE=NTIS ABB=ON  L9 OR L12
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=> DUP REM L13 L14 L15 L16 L17 L24 L25
FILE 'HCAPLUS' ENTERED AT 10:50:45 ON 08 APR 2003

FILE 'WPIX' ENTERED AT 10:50:45 ON 08 APR 2003

FILE 'JICST-EPLUS' ENTERED AT 10:50:45 ON 08 APR 2003

FILE 'JAPIO' ENTERED AT 10:50:45 ON 08 APR 2003

FILE 'COMPENDEX' ENTERED AT 10:50:45 ON 08 APR 2003

FILE 'INSPEC' ENTERED AT 10:50:45 ON 08 APR 2003

FILE 'NTIS' ENTERED AT 10:50:45 ON 08 APR 2003

PROCESSING COMPLETED FOR L13
PROCESSING COMPLETED FOR L14
PROCESSING COMPLETED FOR L15
PROCESSING COMPLETED FOR L16
PROCESSING COMPLETED FOR L17
PROCESSING COMPLETED FOR L24
PROCESSING COMPLETED FOR L25
L26 46 DUP REM L13 L14 L15 L16 L17 L24 L25 (2 DUPLICATES REMOVED)

=> D ALL L26 1-46 HITSTR

L26 ANSWER 1 OF 46 HCAPLUS COPYRIGHT 2003 ACS
AN 2002:867365 HCAPLUS
DN 137:361415
TI Formation of protective films for electronic devices
IN Sawai, Mikio; Taguchi, Kenji
PA Samco International, Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese

IC ICM H01L021-316
ICS C23C016-42; H01L021-318; H05B033-04; H05B033-10
CC 76-3 (Electric Phenomena)
FAN.CNT 1

NO GOOD

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002329720	A2	20021115	JP 2001-131211	20010427
PRAI	JP 2001-131211		20010427		

AB The process includes successive plasma CVD of 1st humidity-protecting SiN layers, humidity absorbing SiOF layers and 2nd humidity-protecting SiN layers on device electronic surfaces. The electronic devices may be **semiconductor** devices or org. EL devices.
ST electronic device protective film plasma CVD; silicon nitride humidity protecting layer; fluoride oxide silicon humidity absorbing layer
IT Dielectric films
Semiconductor devices
(formation of protective films contg. humidity protecting and absorbing layers for electronic devices)
IT Electroluminescent devices
(org.; formation of protective films contg. humidity protecting and absorbing layers for electronic devices)
IT Vapor deposition process
(plasma; formation of protective films contg. humidity protecting and absorbing layers for electronic devices)
IT **82867-87-6P**, Silicon fluoride oxide (SiFO)
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(formation of protective films contg. humidity-**absorbing** layers for electronic devices)
IT 7664-41-7, Ammonia, reactions 7727-37-9, Nitrogen, reactions 7803-62-5, Silane, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(formation of protective films contg. humidity-absorbing layers for electronic devices)
IT 12033-89-5P, Silicon nitride, uses
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(formation of protective films contg. humidity-protecting layers for electronic devices)
IT **82867-87-6P**, Silicon fluoride oxide (SiFO)
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(formation of protective films contg. humidity-**absorbing** layers for electronic devices)
RN 82867-87-6 HCAPLUS
CN Silicon fluoride oxide (SiFO) (9CI) (CA INDEX NAME)

F—Si—O

L26 ANSWER 2 OF 46 HCAPLUS COPYRIGHT 2003 ACS
AN 2002:36602 HCAPLUS
DN 136:103469
TI Heat-resistant resin compositions useful for **semiconductor** devices with good adhesion and low absorbance
IN Okuda, Ryoji; Fujiwara, Takenori; Tomikawa, Masao

PA Toray Industries, Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 17 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C08L079-08
ICS C08F002-44; C08F283-04; C08G073-06; C08G073-10; C08K005-00; C08K005-17; C08K005-28; C08K005-3492; C08L079-04; H01L021-312; H01L021-768
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 76
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002012761	A2	20020115	JP 2001-112287	20010411
PRAI	JP 2000-129395	A	20000428		

AB The compns. useful for surface protective and insulative uses for **semiconductor** devices contain triazine and/or vinyl group-contg. compds. and [COR1(OH)p(CO2R3)nCONHR2(OH)q(CO2R4)oNH]m [R1, R2 = (2-8 valent) org. group contg. .gtoreq.2 C atoms; R3, R4 = H, alkali metal ion, ammonium ion, C1-20 org. group; m = 3-100,000; n = 0-2; p, q = 0-4; n + q >0]. Thus, cyanuric acid triallyl ester was mixed with a mixt. contg. 4,4'-diaminodiphenyl ether-pyromellitic anhydride-3,3',4,4'-benzophenonetetracarboxylic dianhydride copolymer, N,N-dimethylaminoethylmethacrylamide, N-phenylglycin, ethylene glycol dimethacrylate, and 3,3'-carbonylbis(7-diethylaminocoumalin), the resulting mixt. was applied on a glass substrate, dried, and cured to give a 1 .mu.m film showing absorbance 0.035 at 500 nm.

ST heat resistant compn **semiconductor** film triazine; interlayer insulator absorbance ethylene glycol methacrylate; surface protective layer pyromellitic anhydride quinonediazide; photoacid generator cyanuric acid ester film

IT Polyimides, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(fluorine-contg.; heat-resistant resin compns. useful for **semiconductor** devices with good adhesion and low absorbance)

IT Heat-resistant materials
Semiconductor devices
(heat-resistant resin compns. useful for **semiconductor** devices with good adhesion and low absorbance)

IT Polyimides, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(heat-resistant resin compns. useful for **semiconductor** devices with good adhesion and low absorbance)

IT Polyimides, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polybenzoxazole-; heat-resistant resin compns. useful for **semiconductor** devices with good adhesion and low absorbance)

IT Fluoropolymers, uses
Polybenzoxazoles
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP

(Preparation); USES (Uses)
(polyimide-; heat-resistant resin compns. useful for **semiconductor** devices with good adhesion and low absorbance)

IT 84329-58-8P, 3,3',4,4'-Benzophenonetetracarboxylic dianhydride-1,3-bis(3-aminopropyl)tetramethyldisiloxane-4,4'-diaminodiphenyl ether-pyromellitic anhydride copolymer 90863-90-4P, BEM-S-pyromellitic anhydride copolymer 129219-16-5P 232589-14-9DP, ester with N,N-dimethylformamide di-Me acetal **236095-20-8P** 261373-47-1DP, ester with N,N-dimethylformamide di-Me acetal 389085-23-8P, N,N-Dimethylaminoethylmethacrylamide-ethylene glycol dimethacrylate copolymer 389085-32-9P, 3,5-Diaminobenzoic acid-4,4'-diaminodiphenylether-3,3',4,4'-diphenylether tetracarboxylic dianhydride dibutyl ester dichloride copolymer 389086-41-3P, 4,4'-Diaminodiphenyl ether-pyromellitic anhydride copolymer ester with 2-hydroxyethyl methacrylate, polymer with trimethylolpropane triacrylate, ethylene glycol dimethacrylate, and 3-methacryloxypropyldimethoxysilane
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(heat-resistant resin compns. useful for **semiconductor** devices with good adhesion and low **absorbance**)

IT 220426-92-6P 223255-30-9P 251650-61-0P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(heat-resistant resin compns. useful for **semiconductor** devices with good adhesion and low absorbance)

IT 78-08-0, Vinyltriethoxysilane 100-42-5, Styrene, uses 101-37-1, Triallyl cyanurate 290-87-9, 1,3,5-Triazine 1025-15-6, Triallyl isocyanurate 1087-21-4, Diallyl isophthalate 2768-02-7, Vinyltrimethoxysilane
RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(heat-resistant resin compns. useful for **semiconductor** devices with good adhesion and low absorbance)

IT 119666-27-2 172491-61-1, 4NT-300
RL: MOA (Modifier or additive use); USES (Uses)
(photoacid generator; heat-resistant resin compns. useful for **semiconductor** devices with good adhesion and low absorbance)

IT 4024-72-0, o-Quinonediazide
RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(photoacid generator; heat-resistant resin compns. useful for **semiconductor** devices with good adhesion and low absorbance)

IT **236095-20-8P**
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(heat-resistant resin compns. useful for **semiconductor** devices with good adhesion and low **absorbance**)

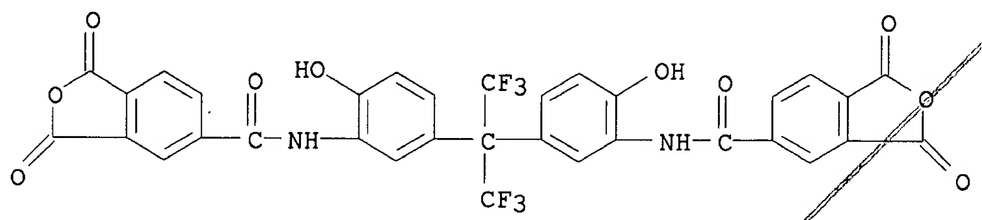
RN 236095-20-8 HCAPLUS

CN 5-Isobenzofurancarboxamide, N,N'-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(6-hydroxy-3,1-phenylene)]bis[1,3-dihydro-1,3-dioxo-, polymer with 4,4'-oxybis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

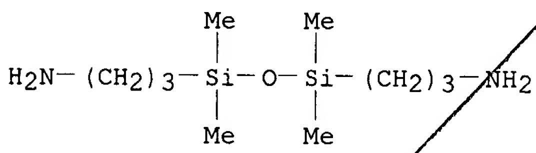
CRN 223255-30-9

CMF C33 H16 F6 N2 O10



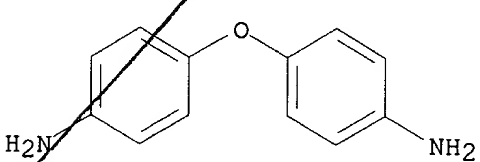
CM 2

CRN 2469-55-8
CMF C10 H28 N2 O Si2



CM 3

CRN 101-80-4
CMF C12 H12 N2 O



L26 ANSWER 3 OF 46 JICST-EPlus COPYRIGHT 2003 JST
AN 1020191209 JICST-EPlus
TI Adsorption of Fluorinated C60 on the Si(111)-(7*7) Surface Studied by Scanning Tunneling Microscopy and High-Resolution Electron Energy Loss Spectroscopy.
AU FUJIKAWA Y; SADOWSKI J T; KELLY K F; NAKAYAMA K S; SAKURAI T MICKELSON E T; HAUGE R H; MARGRAVE J L
CS Tohoku Univ., Sendai, Jpn
Rice Univ., Tx, Usa
SO Jpn J Appl Phys Part 1, (2002) vol. 41, no. 1, pp. 245-249. Journal Code: G0520B (Fig. 4, Ref. 29)
ISSN: 0021-4922
CY Japan
DT Journal; Article
LA English
STA New
AB The adsorption structure of fluorinated C60 molecules deposited on the

Si(111)-(7*7) surface was studied using scanning tunneling microscopy (STM) and high-resolution electron energy loss spectroscopy (HREELS). The results of HREELS revealed the existence of the silicon-fluorine vibration modes with the energy of 103-107 meV, indicating that some of the fluorine atoms were detached from the molecules and chemisorbed to the surface. These fluorine adsorption sites were observed around the **adsorbed** molecules directly in the STM images. Many of the fluorine-**adsorbed** sites were found to form thread-like structures. Random formation of the **F-Si** bonds on the surface prohibits the fluorinated fullerene's freedom from forming an ordered monolayer on the Si(111)-(7*7) surface. (author abst.)

CC BH090300; CB12043P (539.18/.19CLUSTER; 544.723:53.06)

CT scanning tunneling microscope; microscopy; electron energy loss spectrum; silicon; **semiconductor**; surface reconstruction; fullerene C60; fluorination; dissociative adsorption; fluorine; active site; chemical bond

BT scanning probe microscope; microscope; observation and view; spectrum; third row element; element; carbon group element; reconstitution; constitution; fullerene; molecular cluster; molecule; carbon; second row element; halogenation; chemical reaction; chemisorption; adsorption; halogen; binding and coupling

L26 ANSWER 4 OF 46 HCAPLUS COPYRIGHT 2003 ACS ? PRINTED - NOT APPLICABLE

AN 2001:247562 HCAPLUS

DN 134:273816

TI Method and apparatus for controlling chamber surfaces in a **semiconductor** processing reactor

IN Kennard, Mark A.; Ni, Tuqiang

PA Lam Research Corp., USA

SO PCT Int. Appl., 32 pp.
CODEN: PIXXD2

DT Patent

LA English

IC ICM C23C016-44
ICS C23C014-56

CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 47

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001023636	A1	20010405	WO 2000-US41001	20000926
	W: IL, JP, KR, SG				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	~~JP 2003510829~~	~~T2~~	~~20030318~~	JP 2001-527014	20000926
PRAI	US 1999-409804	A	19990930 ABAND.		
	WO 2000-US41001	W	20000926		

AB A system for processing a substrate using a process gas is disclosed. The system forms volatile and nonvolatile species during processing. The system includes a process chamber within which the processing is performed. The process chamber being configured to enclose the substrate, and having a chamber surface proximate to the substrate. The system further includes a chamber surface protection arrangement configured for shielding the surface from the nonvolatile species formed during processing. The chamber surface protection arrangement includes an adsorbing film that is disposed inside the process chamber and substantially adjacent to the chamber surface. The adsorbing film being configured to prevent the nonvolatile species from contacting the chamber

surface, and arranged to adsorb a substantial portion of the nonvolatile species that contact the adsorbing film. The adsorbing film further being arranged for removing the adsorbed nonvolatile species from the process chamber.

ST app shielding nonvolatile substance plasma reactor chamber surface

IT Liquid films
(absorbing; method and app. for shielding chamber surfaces with moving and fluid absorbing film in a **semiconductor** plasma processing reactor)

IT Sputtering
(applied in; method and app. for shielding chamber surfaces with moving and fluid absorbing film in a **semiconductor** plasma processing reactor)

IT Shields
(chamber surface from nonvolatile materials; method and app. for shielding chamber surfaces with moving and fluid absorbing film in a **semiconductor** plasma processing reactor)

IT Vapor deposition process
(chem., applied in; method and app. for shielding chamber surfaces with moving and fluid absorbing film in a **semiconductor** plasma processing reactor)

IT Etching
(dry; method and app. for shielding chamber surfaces with moving and fluid absorbing film in a **semiconductor** plasma processing reactor)

IT Sputtering
(etching, reactive; method and app. for shielding chamber surfaces with moving and fluid absorbing film in a **semiconductor** plasma processing reactor)

IT Polysiloxanes, uses
RL: NUU (Other use, unclassified); USES (Uses)
(fluid absorbing film; method and app. for shielding chamber surfaces with moving and fluid absorbing film in a **semiconductor** plasma processing reactor)

IT Pumps
(for pumping silicone oil to dispenser; method and app. for shielding chamber surfaces with moving and fluid absorbing film in a **semiconductor** plasma processing reactor)

IT Electron cyclotron resonance
(method and app. for shielding chamber surfaces with moving and fluid absorbing film in a **semiconductor** plasma processing reactor)

IT Ferroelectric materials
(nonvolatile species; method and app. for shielding chamber surfaces with moving and fluid absorbing film in a **semiconductor** plasma processing reactor)

IT Vapor deposition process
(phys., applied in; method and app. for shielding chamber surfaces with moving and fluid absorbing film in a **semiconductor** plasma processing reactor)

IT Vapor deposition process
(plasma, applied in; method and app. for shielding chamber surfaces with moving and fluid absorbing film in a **semiconductor** plasma processing reactor)

IT Etching
Reactors
(plasma; method and app. for shielding chamber surfaces with moving and fluid absorbing film in a **semiconductor** plasma processing reactor)

IT Etching
(sputter, reactive; method and app. for shielding chamber surfaces with moving and fluid absorbing film in a **semiconductor** plasma processing reactor)

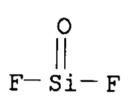
IT 7440-06-4, Platinum, formation (nonpreparative) 7440-50-8, Copper, formation (nonpreparative) **14041-22-6** 54847-42-6, Silicon oxychloride 89750-42-5, Silicon iodide oxide 155380-56-6, Silicon bromide oxide
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(nonvolatile species; method and app. for shielding chamber surfaces with moving and fluid **absorbing** film in a **semiconductor** plasma processing reactor)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE
(1) Anon; PATENT ABSTRACTS OF JAPAN 1989, V013(053), PE-713
(2) Matsushita Electric Ind Co Ltd; JP 63246814 A 1988
(3) Nomura, H; US 5472509 A 1995 HCAPLUS
(4) Piwcyzk, B; US 4022928 A 1977 HCAPLUS
(5) Veb Lokomotivbau-Elektrotechnische Werke- Hans Beiler; FR 1507784 A 1967
(6) Ye, Y; US 5622565 A 1997 HCAPLUS

IT **14041-22-6**
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(nonvolatile species; method and app. for shielding chamber surfaces with moving and fluid **absorbing** film in a **semiconductor** plasma processing reactor)

RN 14041-22-6 HCAPLUS
CN Silane, difluorooxo- (9CI) (CA INDEX NAME)



L26 ANSWER 5 OF 46 JICST-EPlus COPYRIGHT 2003 JST
AN 1010620168 JICST-EPlus
TI F Atom Adsorption on the Fluorinated Si(001) Surface.
AU EZAKI T; OHNO T
CS Sci. Univ. Tokyo, Tokyo, Jpn
SO Jpn J Appl Phys Part 1, (2001) vol. 40, no. 4A, pp. 2115-2118. Journal Code: G0520B (Fig. 4, Ref. 13)
ISSN: 0021-4922
CY Japan
DT Journal; Article
LA English
STA New
AB First-principles pseudopotential total-energy calculations have been performed to investigate the adsorption of a F atom on the **F** -terminated **Si**(001)-2*1 surface. We have determined several stable sites for the **adsorbed** F atom where energy differences and energy barriers between these adsorption sites are relatively small. It is shown that the incoming F atom can be **adsorbed** on the fully fluorinated Si(001) surface and break the substrate Si-Si bonds, which is contrary to the results of previous empirical potential simulation. (author abst.)
CC CB12042Y (544.723.2)
CT adsorption; silicon; fluorine; fluorination; first principle;

pseudopotential method; surface structure; potential barrier; total energy; **semiconductor**
BT third row element; element; carbon group element; second row element; halogen; halogenation; chemical reaction; principle; approximation method; structure; barrier; internal energy; energy; thermodynamic function; thermodynamic property; potential energy; mechanical quantity

L26 ANSWER 6 OF 46 HCAPLUS COPYRIGHT 2003 ACS
AN 2000:209972 HCAPLUS
DN 132:241168
TI Adsorbent for treatment of halogen-containing flue gases from **semiconductor** production
IN Otsuka, Kenji; Arakawa, Satoshi; Hasemi, Ryuji; Amijima, Yutaka; Suzuki, Norihiro
PA Japan Pionics Co., Ltd., Japan
SO PCT Int. Appl., 31 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
IC ICM B01D053-68
ICS B01J020-20
CC 59-4 (Air Pollution and Industrial Hygiene)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000016881	A1	20000330	WO 1999-JP4201	19990804
	W: CN, KR, SG, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	JP 2000157836	A2	20000613	JP 1999-167888	19990615
	EP 1063001	A1	20001227	EP 1999-935051	19990804
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	US 6325841	B1	20011204	US 2000-530951	20000516
PRAI	JP 1998-268067	A	19980922		
	WO 1999-JP4201	W	19990804		

AB The title adsorbent is prepd. by loading 3-18 wt.% (on dry base) of an alkali metal formate and/or an alk. earth metal formate on activated carbon support having sp. surface area 700-2,500 m2/g, preferably 1,000-2,500 m2/g, and grain size 4-32 mesh. Flue gases contg. noxious pollutants such as Cl2, Br2, I2, HF, HCl, HBr, HI, BF3, BCl3, SiF4, SiCl4, TiCl4, AlCl3, GeF4, and/or WF6 are treated by contacting with the adsorbent to strip noxious pollutants under controlled atm., and then desorption. The title adsorbent may be prepd. by impregnating charcoal with an alkali metal hydroxide and/or an alk. earth metal hydroxide together with an alkali metal formate and/or an alk. earth metal formate. The flue gases are preferably treated by adsorption with the agent mainly metal oxides or metal hydroxides at upper stream, then with the agent contg. metal oxides and Na formate at down stream.
ST adsorbent halogen flue gas **semiconductor** manufg; sodium formate activated carbon adsorbent prepn
IT Flue gases
(adsorbent for treatment of halogen-contg. flue gases from **semiconductor** prodn.)
IT Adsorbents
(alkali metal formate and/or alk. earth metal formate on activated carbon; for treatment of halogen-contg. flue gases from **semiconductor** prodn.)

IT Charcoal
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(loaded with alkali metal formate and/or alk. earth metal formate; as adsorbent for treatment of halogen-contg. flue gases from **semiconductor** prodn.)

IT 7440-44-0, Carbon, processes
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(activated, loaded with alkali metal formate and/or alk. earth metal formate; as adsorbent for treatment of halogen-contg. flue gases from **semiconductor** prodn.)

IT 7446-70-0, Aluminum trichloride, processes 7550-45-0, Titanium tetrachloride, processes 7553-56-2, Iodine, processes 7637-07-2, Boron trifluoride, processes 7647-01-0, Hydrochloric acid, processes 7664-39-3, Hydrofluoric acid, processes 7726-95-6, Bromine, processes 7782-50-5, Chlorine, processes 7783-58-6, Germanium tetrafluoride **7783-61-1**, Silicon tetrafluoride 7783-82-6, Tungsten hexafluoride 10026-04-7, Silicon tetrachloride 10034-85-2, Hydrogen iodide 10035-10-6, Hydrogen bromide, processes 10294-34-5, Boron trichloride
RL: POL (Pollutant); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)
(**adsorbent** for treatment of halogen-contg. flue gases from **semiconductor** prodn.)

IT 1305-62-0, Calcium hydroxide, processes 1310-58-3, Potassium hydroxide, processes 1310-73-2, Sodium hydroxide, processes
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(mixed with alkali metal formate and/or alk. earth metal formate on activated carbon; adsorbent for treatment of halogen-contg. flue gases from **semiconductor** prodn.)

IT 141-53-7, Sodium formate 544-17-2, Calcium formate 590-29-4, Potassium formate
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(on activated carbon; adsorbent for treatment of halogen-contg. flue gases from **semiconductor** prodn.)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE
(1) Boc Ltd; EP 609028 A1 HCAPLUS
(2) Boc Ltd; JP 7762 A 1995
(3) Japan Pioncs Co Ltd; TW 348069 A
(4) Japan Pioncs Co Ltd; US 5756060 A HCAPLUS
(5) Japan Pioncs Co Ltd; US 5882615 A HCAPLUS
(6) Japan Pioncs Co Ltd; EP 764458 A1 HCAPLUS
(7) Japan Pioncs Co Ltd; EP 792681 A1 HCAPLUS
(8) Japan Pioncs Co Ltd; KR 97005322 A
(9) Japan Pioncs Co Ltd; KR 97061340 A
(10) Japan Pioncs Co Ltd; JP 09234337 A 1997 HCAPLUS
(11) Japan Pioncs Co Ltd; JP 999216 A 1997
(12) Takeda Chemical Industries Ltd; US 4594231 A HCAPLUS
(13) Takeda Chemical Industries Ltd; JP 6161618 A 1986
(14) The Nippon Chemical Industrial Co Ltd; JP 09155187 A 1997 HCAPLUS

IT **7783-61-1**, Silicon tetrafluoride
RL: POL (Pollutant); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)
(**adsorbent** for treatment of halogen-contg. flue gases from

semiconductor prodn.)
RN 7783-61-1 HCAPLUS
CN Silane, tetrafluoro- (9CI) (CA INDEX NAME)

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    F
    |
F - Si - F
    |
    F
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L26 ANSWER 7 OF 46 HCAPLUS COPYRIGHT 2003 ACS

? - PRINTED, NOT APPLICABLE

AN 2000:78852 HCAPLUS
DN 132:145327
TI Silica film to tie up free fluorine in a substrate processing chamber after a cleaning process
IN Gupta, Anand; Bhan, Mohan; Subrahmanyam, Sudhakar
PA Applied Materials, Inc., USA
SO U.S., 22 pp.
CODEN: USXXAM
DT Patent
LA English
IC ICM B05D003-06
ICS H05H001-02; B08B005-00
NCL 427534000
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 75
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6020035	A	20000201	US 1996-740381	19961029
	US 6223685	B1	20010501	US 1999-452551	19991201
PRAI	US 1996-740381	A3	19961029		

AB An improved method is described for reducing the level of contaminants (e.g., F) **absorbed** in films deposited within a substrate processing chamber. A seasoning layer is deposited within the substrate processing chamber to cover contaminants that may be **absorbed** within walls or insulation areas of the chamber interior. The deposited seasoning layer is more stable than prior art seasoning layers and is thus less likely to release the **absorbed** contaminants into the substrate processing chamber during the subsequent deposition of films. In a preferred embodiment, the seasoning layer is formed from a mixed frequency PECVD process in which the low frequency RF signal is supplied at a high power level to increase ion bombardment and enhance film stability. The increased bombardment favors the formation of stable **SiF** bonds between **Si** and **F** atoms in the lattice structure of the film rather than unstable SiF2 or other bonds. When residual F atoms (e.g., F atoms **absorbed** within the chamber walls) are incorporated into the deposited seasoning layer, fewer loosely bonded F atoms are incorporated into the layer than in prior art Si oxide seasoning layers. Fewer loosely bonded F atoms in the seasoning film results in fewer contaminants being incorporated into films deposited over substrates in subsequent processing steps.
ST silica film removal fluorine vapor deposition app
IT Silicate glasses
RL: PEP (Physical, engineering or chemical process); TEM (Technical or

engineered material use); PROC (Process); USES (Uses)
(film to tie up free fluorine in vapor deposition chamber after a cleaning process)

IT Fluoride glasses
Fluoride glasses
Silicate glasses
Silicate glasses
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(fluorosilicate; film to tie up free fluorine in vapor deposition chamber after a cleaning process)

IT Vapor deposition apparatus
Vapor deposition process
(plasma; silica film to tie up free fluorine in vapor deposition chamber after a clean process)

IT Coating apparatus
Contamination (electronics)
Ion bombardment
Semiconductor device fabrication
(silica film to tie up free fluorine in vapor deposition chamber after a clean process)

IT Integrated circuits
(silica film to tie up free fluorine in vapor deposition chamber after a cleaning process in a reactor for fabricating)

IT 7782-41-4, Fluorine, processes
RL: OCU (Occurrence, unclassified); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)
(silica film to tie up free fluorine in vapor deposition chamber after a clean process)

IT 7631-86-9, Silica, processes
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(silica film to tie up free fluorine in vapor deposition chamber after a clean process)

IT 78-10-4, Tetraethoxysilane
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(silicon source for silica film to tie up free fluorine in vapor deposition chamber after a clean process)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE
(1) Anon; JP 5892217 1983
(2) Anon; JP 5892218 1983
(3) Chang; US 5201990 1993 HCAPLUS
(4) Chhabra; US 5040046 1991 HCAPLUS
(5) Fairbairn; US 5614055 1997 HCAPLUS
(6) Gupta; US 5824375 1998 HCAPLUS
(7) Kobayashi; US 5304405 1994 HCAPLUS
(8) Langley; US 5221414 1993 HCAPLUS
(9) Law; US 4960488 1990 HCAPLUS
(10) Law; US 5589233 1996 HCAPLUS
(11) Musaka; US 5571571 1996 HCAPLUS
(12) Nagashima; US 5129958 1992
(13) Nguyen; US 5244730 1993 HCAPLUS
(14) Nishiyama; US 5429995 1995 HCAPLUS
(15) Rivoire; US 5431964 1995 HCAPLUS
(16) Robertson; US 5366585 1994
(17) Tabasky; US 5045346 1991 HCAPLUS

(18) Tanaka; US 5011705 1991
(19) Tsukune; US 5041311 1991 HCAPLUS
(20) Yau; US 4837185 1989 HCAPLUS

L26 ANSWER 8 OF 46 HCAPLUS COPYRIGHT 2003 ACS

PRINTED - NOT APPLICABLE

AN 1999:233708 HCAPLUS
DN 130:304982
TI **Semiconductor** devices having a built-in fuse and fabrication thereof
IN Kokubu, Tetsuya
PA NEC Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01L021-82
CC 76-3 (Electric Phenomena)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11097542	A2	19990409	JP 1997-255306	19970919
	JP 3186664	B2	20010711		
	TW 406297	B	20000921	TW 1998-87115721	19980919
	CN 1218980	A	19990609	CN 1998-119687	19980921
	US 6008716	A	19991228	US 1998-157539	19980921
PRAI	JP 1997-255306	A	19970919		

AB The title devices have lower and 1st upper circuit wires connected across a 1st interlayer insulator film by a metal plug, a 2nd upper circuit wire provided in parallel to the 1st upper circuit wire, a 2nd interlayer insulator film formed over the 1st and 2nd upper circuit wires and 1st interlayer insulator film, a contact hole provided to the 2nd interlayer insulator film, nd a passivation film formed on the 2nd interlayer insulator film. The lower and 1st upper circuits are to be connected to a redundancy circuit upon cutting off to a damaged circuit by laser irradn. over a metallic plug to evap. a portion of the 1st upper circuit wire. The fuse system provides a high reliability to the devices even employment of a moisture-**absorbing** interlayer insulator films such as **F**-doped **Si** oxide films.

ST interlayer insulator moisture absorption **semiconductor** device fuse laser evapn

IT Passivation
(electrochem.; **semiconductor** devices having a built-in fuse and fabrication thereof)

IT Humidity
(insulator **absorbing** of; **semiconductor** devices having a built-in fuse and fabrication thereof)

IT Electric insulators
(interlayer, moisture-**absorbing**; **semiconductor** devices having a built-in fuse and fabrication thereof)

IT Laser radiation
(of fuse; **semiconductor** devices having a built-in fuse and fabrication thereof)

IT Contact holes
Electric circuits
Electric fuses
Semiconductor devices
(**semiconductor** devices having a built-in fuse and fabrication thereof)

IT 7429-90-5, Aluminum, properties
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(circuit wiring; **semiconductor** devices having a built-in fuse and fabrication thereof)
IT 7631-86-9, Silica, properties
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(fluoro-doped; **semiconductor** devices having a built-in fuse and fabrication thereof)
IT 7440-33-7, Tungsten, properties
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(plug; **semiconductor** devices having a built-in fuse and fabrication thereof)

L26 ANSWER 9 OF 46 JAPIO COPYRIGHT 2003 JPO
AN 1999-026445 JAPIO
TI INSULATING FILM, FILM-FORMING METHOD AND **SEMICONDUCTOR** DEVICE
IN KOBAYASHI KINYA; KATOU KIYOTAKA
PA HITACHI LTD
PI JP 11026445 A 19990129 Heisei
AI JP 1997-175519 (JP09175519 Heisei) 19970701
PRAI JP 1997-175519 19970701
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1999
IC ICM H01L021-314
ICS H01L021-316; H01L021-768
AB PROBLEM TO BE SOLVED: To provide an insulating film, having low dielectric coefficient and low humidity **absorbing** property and method of forming the insulating film and also provide a **semiconductor** device having an insulating film formed by such a method.
SOLUTION: Because of the magnetic field generated by an electromagnet 4 and microwave introduced from a waveguide, gases 7a (**SiF** <SB>4</SB>), 7d (B<SB>2</SB>H<SB>6</SB>) supplied passing an inlet port 6a from gas cylinders 5a, 5d and gases 7b (O<SB>2</SB>), 7c (Ar) supplied passing an inlet port 6b from cylinders 5b, 5c are electrolytically dissociated to generate plasma. In this case, since radicals generated by the separating reaction through the collision of electrons in the plasma react in the **semiconductor** wafer 13, the structures Si-O, **Si-F**, B-O and B-F can be formed within a film.
COPYRIGHT: (C)1999,JPO

L26 ANSWER 10 OF 46 INSPEC COPYRIGHT 2003 IEE
AN 1999:6428298 INSPEC DN A2000-02-8160C-019
TI Si(100)-(2*1) etching with fluorine: planar removal versus three dimensional pitting.
AU Nakayama, K.S.; Weaver, J.H. (Dept. of Mater. Sci. & Chem. Eng., Minnesota Univ., Minneapolis, MN, USA)
SO Physical Review Letters (18 Oct. 1999) vol.83, no.16, p.3210-13. 26 refs.
Published by: APS
Price: CCCC 0031-9007/99/83(16)/3210(4)$15.00
CODEN: PRLTAO ISSN: 0031-9007
SICI: 0031-9007(19991018)83:16L.3210:EWFP;1-#
DT Journal
TC Experimental
CY United States
LA English
AB The morphologies achieved by thermally activated reactions of

adsorbed F with **Si**(100)-(2*1) were studied with scanning tunneling microscopy. Dimer vacancies were produced in the top layer but, more significantly, there was a new reaction pathway that gave rise to multilayer pitting even when the surface concentration was very low. This pathway can be linked to the atomic structure of the exposed layer and the formation of SiF2 in that layer. It accounts for surface roughening, and it is very effective.

CC A8160C Surface treatment and degradation in semiconductor technology; A6820 Solid surface structure; A8265J Heterogeneous catalysis at surfaces and other surface reactions; A6845B Sorption equilibrium at solid-fluid interfaces; A8265M Sorption and accommodation coefficients (surface chemistry)

CT **ADSORBED** LAYERS; ELEMENTAL **SEMICONDUCTORS**; ETCHING; FLUORINE; SCANNING TUNNELLING MICROSCOPY; SILICON; SURFACE CHEMISTRY; SURFACE TOPOGRAPHY; VACANCIES (CRYSTAL)

ST Si(100)-(2*1) etching; planar removal; 3D pitting; morphologies; thermally activated reactions; **adsorbed F**; scanning tunneling microscopy; dimer vacancies; multilayer pitting; surface concentration; exposed layer; atomic structure; SiF2; surface roughening; Si; F

CHI Si sur, Si el; F ads, F el

ET Si; F; F*Si; SiF2; Si cp; cp; F cp; D

L26 ANSWER 11 OF 46 JAPIO COPYRIGHT 2003 JPO

AN 1998-092888 JAPIO

TI APPARATUS AND METHOD OF DECOMPOSING **SEMICONDUCTOR** SAMPLE

IN TAKENAKA MIYUKI; YAMADA YUJI; HAYASHI MASARU; MATSUNAGA HIDEKI; OKADA AKIRA

PA TOSHIBA CORP

PI JP 10092888 A 19980410 Heisei

AI JP 1996-247411 (JP08247411 Heisei) 19960919

PRAI JP 1996-247411 19960919

SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1998

IC ICM H01L021-66
ICS G01N001-36

AB PROBLEM TO BE SOLVED: To decompose a sample and adjust a decomposed soln., without causing contamination with reagents and environment by warming an Si material in a closed vessel to precipitate ammonium salt and volatilizing it away by an oxidative vapor.
SOLUTION: A closed vessel 1 has a lid 1a, vessel for supporting a **semiconductor** substrate and mounting part 2a for mounting the substrate at the center and the vessel 3a and part 2a are filled with HF and HNO<SB>3</SB> which are evaporated and **absorbed** by an Si wafer in the vessel to quickly decompose it. In the HNO<SB>3</SB> or HF system, NO<SB>3</SB> is reduced by protons into (NH<SB>4</SB>)<SB>2</SB> **SiF**<SB>6</SB>, precipitating a white ammonium silicofluoride salt having a very strong complex forming power in the soln. This salt is formed with the acid vapor only, and so is a very high purity substance contg. a trace of impurity which is analyzed by the frameless atomic absorption or inductive coupling plasma mass analysis etc.
COPYRIGHT: (C)1998,JPO

L26 ANSWER 12 OF 46 HCAPLUS COPYRIGHT 2003 ACS

AN 1998:655178 HCAPLUS

DN 130:7763

TI Interactions of SrF2 and PrF3 with TiC(111) and Si(111) surfaces studied by low-energy D+ scattering spectroscopy

AU Souda, R.; Asari, E.; Kawanowa, H.; Suzuki, T.; Otani, S.

CS National Institute for Research in Inorganic Materials, 1-1 Namiki,

Tsukuba, Ibaraki, 305, Japan
SO Physical Review B: Condensed Matter and Materials Physics (1998), 58(15), 10054-10059
CODEN: PRBMDO; ISSN: 0163-1829
PB American Physical Society
DT Journal
LA English
CC 66-5 (Surface Chemistry and Colloids)
Section cross-reference(s): 65, 67, 73, 76
AB From neutralization of scattered low-energy D+ ions, the nature of the bonding of ionic mols. **adsorbed** on metal and **semiconductor** surfaces was studied. SrF2 reacts with the active dangling-bond states of the TiC(111) surface and the ionic bonding between Sr2+ and F- ions is strongly weakened. However, the ionicity of the **adsorbates** recovers after oxygenation or hydrogenation of the TiC(111) surface since H or O passivates the dangling-bond states at the interface. However, the dangling bond of Si(111) has relatively little effect on the ionic Sr-F bond formation and rather dissocn. of SrF2 is promoted at an elevated temp. due to preferential reaction of **F** with **Si**. In terms of PrF3, ionicity is strongly reduced on both Si(111) and TiC(111) surfaces and oxygenation of the surface has very little effect, suggesting that PrF3 is dissociatively **adsorbed** and Pr forms covalent or metallic bonds with the substrate.
ST **adsorbed** strontium fluoride silicon titanium carbide dangling bond; praseodymium fluoride **adsorbed** silicon titanium carbide dangling bond
IT Bond
(dangling; interactions of SrF2 and PrF3 with dangling bond states of TiC(111) and Si(111) surfaces studied by low-energy D+ scattering spectroscopy)
IT Electronic structure
(detn. of electronic structure of **adsorbed** SrF2 and PrF3 on TiC(111) and Si(111) surfaces using low-energy D+ scattering spectroscopy)
IT Dissociative chemisorption
(dissociative adsorption of SrF2 and PrF3 on TiC(111) and Si(111) surfaces using low-energy D+ scattering spectroscopy)
IT Chemisorbed substances
(interactions of **adsorbed** SrF2 and PrF3 with TiC(111) and Si(111) surfaces studied by low-energy D+ scattering spectroscopy)
IT Bond
(of SrF2 and PrF3 with TiC(111) and Si(111) surfaces studied by low-energy D+ scattering spectroscopy)
IT 16984-48-8, Fluoride, properties 22537-39-9, Strontium, ion (sr2+), properties 22541-14-6, Praseodymium, ion (Pr3+), properties
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)
(effect of substrate dangling bonds on formation of ionic bonds between Sr2+ (Pr3+) and F- on TiC(111) and Si(111) using low-energy D+ scattering spectroscopy)
IT 7440-21-3, Silicon, properties 12070-08-5, Titanium carbide (TiC)
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(interactions of SrF2 and PrF3 with TiC(111) and Si(111) surfaces studied by low-energy D+ scattering spectroscopy)
IT 7783-48-4, Strontium fluoride (SrF2) 13709-46-1, Praseodymium fluoride (PrF3)
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC

(Process); RACT (Reactant or reagent)
(interactions of SrF_2 and PrF_3 with TiC(111) and Si(111) surfaces studied by low-energy D+ scattering spectroscopy)

RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE
(1) Aono, M; Jpn J Appl Phys Part 1 1985, V24, P1249 HCAPLUS
(2) Aono, M; Jpn J Appl Phys Part 2 1981, V20, PL829 HCAPLUS
(3) Asano, T; Jpn J Appl Phys Part 1 1983, V22, P1474 HCAPLUS
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(6) Himpsel, F; Phys Rev Lett 1986, V56, P1497 HCAPLUS
(7) Hoshino, T; J Magn Magn Mater 1983, V31, P901
(8) Katayama, M; Nucl Instrum Methods Phys Res B 1988, V33, P857
(9) Kawanowa, H; unpublished
(10) Lucas, C; Phys Rev Lett 1993, V70, P1826 HCAPLUS
(11) Olmstead, M; Phys Rev B 1987, V35, P7526 HCAPLUS
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(21) Souda, R; Phys Rev B 1994, V50, P4733 HCAPLUS
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(23) Stanpfl, C; Phys Rev Lett 1992, V69, P1532
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(25) Tromp, R; Phys Rev Lett 1988, V61, P1756 HCAPLUS
(26) Tsuneyuki, S; Surf Sci 1987, V186, P26 HCAPLUS

L26 ANSWER 13 OF 46 HCAPLUS
AN 1997:715839 HCAPLUS
DN 127:354398
TI Apparatus for treatment of exhaust gas in cleaning of **semiconductor** wafer manufacture system and the cleaning method
IN Kawamura, Gohei
PA Tokyo Electron, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01L021-31
ICS B01D053-34; B01D053-81; B01D053-68; B01J020-18; C23C016-44; H01L021-205; H01L021-22; H01L021-324
CC 76-3 (Electric Phenomena)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09283510	A2	19971031	JP 1996-111330	19960408
PRAI	JP 1996-111330		19960408		

AB The app. has a tube, which is assocd. with a means of cooling, for absorbing toxic components in the exhaust gas. A system for oxidn., CVD, etc., of **semiconductor** wafers is cleaned by a process, e.g., supplying NF_3, for removing SiO_2 fixed on the wall of the system by conversion into SiF_4, NO_x, etc., as the exhaust gas, which are absorbed in the described tube. The tube is cooled by circulating water, etc., to

prevent overheating.

ST **semiconductor** wafer manuf system cleaning app; exhaust gas absorbing tube cleaning process; cooling tube exhaust gas absorbing

IT Absorption apparatus
Cleaning
Pipes and Tubes
Semiconductor materials
(cleaning of system for manuf. of **semiconductor** wafer including exhaust gas-absorbing tube assocd. with a means of cooling)

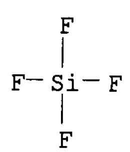
IT 7783-54-2, Nitrogen trifluoride
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(cleaning gas; cleaning of system for manuf. of **semiconductor** wafer including exhaust gas-absorbing tube assocd. with a means of cooling)

IT **7783-61-1**, Silicon fluoride 11104-93-1, Nitrogen oxide, processes
RL: REM (Removal or disposal); PROC (Process)
(exhaust gas; cleaning of system for manuf. of **semiconductor** wafer including exhaust gas-**absorbing** tube assocd. with a means of cooling)

IT **7783-61-1**, Silicon fluoride
RL: REM (Removal or disposal); PROC (Process)
(exhaust gas; cleaning of system for manuf. of **semiconductor** wafer including exhaust gas-**absorbing** tube assocd. with a means of cooling)

RN 7783-61-1 HCAPLUS

CN Silane, tetrafluoro- (9CI) (CA INDEX NAME)



L26 ANSWER 14 OF 46 HCAPLUS COPYRIGHT 2003 ACS
AN 1997:191648 HCAPLUS
DN 126:194137
TI Fluorine-containing electrically insulating film and its manufacture
IN Ikesu, Haruhiko; Nakano, Tadashi
PA Kawasaki Steel Co, Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01L021-316
ICS H01L021-768
CC 76-10 (Electric Phenomena)
Section cross-reference(s): 75
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09008029	A2	19970110	JP 1995-149047	19950615
PRAI	JP 1995-149047		19950615		

AB The film, comprising SiO_2 having Si-H and **Si-F** bonds, is manufd. by plasma CVD from $SiH(OR)_3$ (R = alkyl) and F-contg. gas. The

film has low dielec. const. and low H2O **absorbability**, and is useful as a surface-protective film or an interlayer insulating film.
ST fluorine contg dielec film plasma CVD; alkoxysilane deposition source insulating film manuf
IT Electric insulators
(plasma CVD of dielec. films)
IT **Semiconductor** devices
(plasma CVD of dielec. films for)
IT Vapor deposition process
(plasma; of dielec. films)
IT 76-16-4, Perfluoroethane 998-30-1, Triethoxysilane 3046-20-6, Triisobutoxysilane
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(manuf. of F-contg. dielec. silica films by plasma CVD from)
IT 7631-86-9, Silica, processes 116305-88-5, Silicon fluoride oxide
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(plasma CVD of dielec. films of)

L26 ANSWER 15 OF 46 JAPIO COPYRIGHT 2003 JPO
AN 1997-064181 JAPIO
TI **SEMICONDUCTOR** DEVICE
IN NAKASAKI YASUSHI
PA TOSHIBA CORP
PI JP 09064181 A 19970307 Heisei
AI JP 1995-217855 (JP07217855 Heisei) 19950825
PRAI JP 1995-217855 19950825
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1997
IC ICM H01L021-768
AB PROBLEM TO BE SOLVED: To enable suppression of moisture **absorbing** properties by reducing a defect caused by oxygen atoms having an uncombined hand not participating in a crosslink of a network structure of SiO<SB>2</SB> or a defect brought about in a state wherein the oxygen atoms having this uncombined hand captures an electron or a hole.
SOLUTION: In the case when a defect is present in a state wherein noncrosslinking oxygen being an oxygen atom having an uncombined hand not participating in a crosslink of a network structure of SiO<SB>2</SB> or the oxygen atom captures an electron, TEOS, O<SB>2</SB>, **SiF** (OC<SB>2</SB>H<SB>5</SB>)<SB>3</SB> and SiH<SB>4</SB> are introduced as material gases into a film forming chamber 6 simultaneously and a prescribed pressure is maintained. Then, an electric discharge is started by impressing an RF power by a high-frequency power source 12 on an electrode 7 opposed to a **semiconductor** substrate 1, while an RF bias is impressed on a substrate support stage 2 simultaneously by a high-frequency power source 5 provided for the substrate support stage 2, and thereby formation of an SiO<SB>2</SB> film which is a layer insulating film and contains no defect and to which F is added is executed. According to this constitution, moisture **absorbing** properties can be suppressed.
COPYRIGHT: (C)1997,JPO

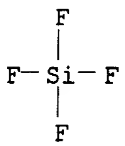
L26 ANSWER 16 OF 46 HCAPLUS COPYRIGHT 2003 ACS
AN 1996:191750 HCAPLUS
DN 124:240801
TI Treatment of waste gases containing nitrogen trifluoride
IN Ichikawa, Masaru; Oonishi, Ryuichiro; Arai, Hiromichi
PA Central Glass Co Ltd, Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF

DT Patent
LA Japanese
IC ICM B01D053-68
ICS B01D053-34; B01D053-54
CC 59-4 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 76
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08019727	A2	19960123	JP 1994-154043	19940706
PRAI	JP 1994-154043		19940706		

AB The waste gases are passed through layers filled with adsorbents of activated carbon, mol. sieving carbon, and/or zeolites having pore size 4-7 .ANG. to selectively adsorb and remove NF3. The process is suitable for waste gases from **semiconductor** or amorphous Si device manuf.
ST nitrogen trifluoride removal waste gas; adsorbent nitrogen trifluoride removal; activated carbon adsorbent nitrogen trifluoride; mol sieve adsorbent nitrogen trifluoride; zeolite adsorbent nitrogen trifluoride removal
IT Zeolites, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(adsorbents; removal of nitrogen trifluoride from waste gases by adsorbents)
IT Adsorbents
Waste gases
(removal of nitrogen trifluoride from waste gases by adsorbents)
IT **Semiconductor** devices
(waste gases from manuf. of; removal of nitrogen trifluoride from waste gases by adsorbents)
IT Zeolites, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(ZSM 5, adsorbents; removal of nitrogen trifluoride from waste gases by adsorbents)
IT Zeolites, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(aluminophosphate, adsorbents; removal of nitrogen trifluoride from waste gases by adsorbents)
IT Molecular sieves
(carbon, adsorbents; removal of nitrogen trifluoride from waste gases by adsorbents)
IT 7440-44-0, Carbon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(activated or mol. sieving, adsorbents; removal of nitrogen trifluoride from waste gases by adsorbents)
IT 7783-54-2, Nitrogen trifluoride
RL: POL (Pollutant); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)
(removal of nitrogen trifluoride from waste gases by adsorbents)
IT 7664-39-3, Hydrogen fluoride, processes **7783-61-1**, Silicon tetrafluoride 13766-47-7, Tungsten tetrafluoride
RL: REM (Removal or disposal); PROC (Process)
(removal of, in pretreatment of waste gases; removal of nitrogen trifluoride from waste gases by **adsorbents**)
IT **7783-61-1**, Silicon tetrafluoride
RL: REM (Removal or disposal); PROC (Process)
(removal of, in pretreatment of waste gases; removal of nitrogen trifluoride from waste gases by **adsorbents**)
RN 7783-61-1 HCAPLUS

CN Silane, tetrafluoro- (9CI) (CA INDEX NAME)



L26 ANSWER 17 OF 46 WPIX (C) 2003 THOMSON DERWENT
AN 1996-223418 [23] WPIX
DNC C1996-070958
TI Fluorine-contg. silicone cpd. prodn. - by hydrosilylation of specified unsatd. fluorinated cpd. and hydro-silicone having at least one hydrogen atom bonded to silicon atom.
DC A26 D21 E11 G05 H08 L03 S06 T03 U11 V02 V04 V06 V07 X11 X12
IN FURUKAWA, Y; KOTERA, M; KUMAI, S; OHARU, K; TOMA, T
PA (ASAG) ASAHI GLASS CO LTD
CYC 7

PI	EP 710691	A1	19960508	(199623)*	EN	17p	C08G077-385
	R: DE ES FR GB IT						
	JP 08176032	A	19960709	(199637)		7p	C07C021-18
	JP 08176306	A	19960709	(199637)		11p	C08G077-385
	JP 08176307	A	19960709	(199637)		9p	C08G077-385
	US 5663399	A	19970902	(199741)		11p	C07F007-08
	US 5728903	A	19980317	(199818)		11p	C07C017-15
	US 5914422	A	19990622	(199931)			C07F007-08

ADT EP 710691 A1 EP 1995-116901 19951026; JP 08176032 A JP 1995-14404 19950131; JP 08176306 A JP 1995-254028 19950929; JP 08176307 A JP 1995-254032 19950929; US 5663399 A US 1995-547923 19951025; US 5728903 A Div ex US 1995-547923 19951025, US 1997-779370 19970106; US 5914422 A Div ex US 1995-547923 19951025, Div ex US 1997-779370 19970106, US 1997-966482 19971107
FDT US 5728903 A Div ex US 5663399; US 5914422 A Div ex US 5663399, Div ex US 5728903
PRAI JP 1995-254032 19950929; JP 1994-265334 19941028; JP 1995-254028 19950929
REP EP 657486; US 5233071; US 5321108
IC ICM C07C017-15; C07C021-18; C07F007-08; C08G077-385
ICS C07B037-04; C07C017-35; C07C031-34; C07C067-293; C07C069-63; C07F007-18; C08L083-07
ICA C08F014-18
AB EP 710691 A UPAB: 19960618
Producing a fluorine-contg. silicone cpd. comprises subjecting a cpd. of formula Rf-Q-CR1R2CR3=CR4R5 (I) and a hydrosilicone cpd. having at least one H-atom bonded to a Si-atom to hydrolylation to obtain a F-contg. silicone cpd. having a gp. of formula Rf-Q-CR1R2CR3HCR4R5- (II) bonded to the Si-atom. In the formulae: Rf = a monovalent, F-contg. organic gp., Q = a direct bond or a bivalent organic gp. contg. no F; and R1-R5 = H or a monovalent organic gp..

Also claimed are: (1) a process for producing a F-contg. silicone comprising hydrosilylation of (I) and an excess equiv. amt. of a hydrosilicone cpd. having at least 2 Si-bonded H-atoms to obtain a F-contg. silicone cpd. having a gp. Rf-Q-CR1R2CR3HCR4R5- (II) bonded to the Si-atom; (2) a process for producing a F-contg. silicone comprising hydrosilyation of a cpd. of formula Rf-Q-CH2CH=CH2 (III) and an excess

equiv. amt. of a hydrosilicone cpd. of formula (R8)3SiO.(Si(R8)2O)q.(SiH(R8)2O)s.Si(R8)3 (IV) having at least 2 Si-bonded H-atoms to obtain a F-contg. silicone cpd. of formula (R8)3SiO.(Si(R8)2O)q.(SiH(R8)2O)s.Si(R8)3 (V) having a gp. Rf-Q-CH2CH2CH2- (VI) bonded to the Si-atom, where: R8 = a monovalent organic gp.; s = 2 or more; f = 1 or more but less than s; and q = 0 or more; (3) a process for producing a F-contg. silicone comprising hydrosilylation of a hydrosilicone cpd. having at least 2 Si-bonded H-atoms and an excess equiv. amt. of (I) to obtain a F-contg. silicone cpd. having a gp. Rf-Q-CR1R2CR3HCR4R5- (II) bonded to the Si-atom and no H-atom bonded to the Si-atom; and (4) a process for producing a F-contg. silicone comprising hydrosilylation of a cpd. of formula (R8)3SiO.(Si(R8)2O)q.(SiH(R8)2O)r.Si(R8)3 (VII) having at least one Si-bonded H-atom and an excess equiv. amt. of (II) to obtain a F-contg. silicone cpd. of formula (R8)3SiO.(Si(R8)2O)1.(Si(CH2CH2CH2-Q-Rf)(R8)O)r. Si(R8)3 (VIII) having a gp. Rf-Q-CH2CH2CH2- (IX) bonded to the Si-atom and no H-atom bonded to the Si-atom, where r = 1 or more.

USE - The fluorinated silicones may be functional oils used to give a heat-fixing roll of a copying or printing machine a stain-proofing property to prevent offset phenomena. Cpds. contg. an unsatd. gp. in the mol. are crosslinkers used in silicone resins or rubbers for electrical uses e.g. insulating varnish, glass cloth laminate, potting resin, surface treatments of **semiconductors**, cladding for glass fibres and release agents. The silicones may also be used as lubricating oils, as transmission, brake, coupling or vibration-deadening oils for vehicles, aircraft, instruments or shock-**absorbers**, as lubricating agents, repellents and release agents, in shampoos and other cosmetics, for powder treatment, as lubricants for fabrics, as insulating oils, in levelling, anti-block and other agents for polymers, as plasticisers or modifiers for rubbers or resins, as antifoaming agents as base oils for grease or in foam stabilisers, blending oils for wax, toner treating agents, oil sealing agents, rust proofing agents, antistatic agents, anti-fogging agents, additives for pharmaceuticals, polishing materials etc..

ADVANTAGE - **F**-contg. **Si**-cpds. and their starting materials are produced cheaply and efficiently by the new process.

Dwg.0/0

FS CPI EPI

FA AB; DCN

MC CPI: A06-A00D; A10-E04A; D08-B04; E05-E02; G05-F; G06-G08C; H08-D; L04-C26
EPI: S06-A04C9; S06-A06C1; T03-A01B5B; T03-A03J3E; U11-A07; V02-D; V04-R03E; V04-R07L; V06-M08B; V07-F01B1; X11-J02B; X12-C01B; X12-D03D; X12-E02B

L26 ANSWER 18 OF 46 JICST-EPlus COPYRIGHT 2003 JST

AN 960543116 JICST-EPlus

TI Characterization of Stable Fluorine-Doped Silicon Oxide Film Prepared by Biased Helicon Plasma Chemical Vapor Deposition.

AU TAMURA T; INOUE Y; SATOH M; YOSHITAKA H; SAKAI J

CS Anelva Corp., Tokyo, JPN

SO Jpn J Appl Phys Part 1, (1996) vol. 35, no. 4B, pp. 2526-2529. Journal Code: G0520B (Fig. 10, Ref. 12)
ISSN: 0021-4922

CY Japan

DT Journal; Article

LA English

STA New

AB Fluorine-doped silicon oxide (SiOF) film prepared by biased helicon plasma chemical vapor deposition with SiF4 and O2 is characterized. In this

characterization, the SiOF film is compared with that prepared using a nonbiased plasma. SiOF films prepared using a biased plasma are stable in air. Whereas films prepared using a nonbiased plasma are not stable in air and the relative dielectric constant and stress vary in the ranges 3.2 to 3.5 and from -35 MPa to 0 MPa, respectively. Analysis Fourier transform infrared (FT-IR) and thermal desorption mass spectroscopy (TDS) spectra, clarifies the following. (1) **Si-F** bonds are formed in SiOF films prepared using a biased plasma. (2) Not only **Si-F** bonds but also **F-Si-F** bonds are formed in SiOF films prepared using a nonbiased plasma. (3) The **F-Si-F** bond structure formed in SiOF films **absorbs** water easily. (author abst.)

CC BK14040E (539.23:621.315.592)

CT thermal desorption spectroscopy; plasma CVD; silicon oxide; compound **semiconductor**; doping; fluorine; **semiconductor** thin film; thin film growth; infrared absorption spectrum; chemical bond; network structure

BT spectrum; chemical vapor deposition; vapor deposition; silicon compound; carbon group element compound; oxide; chalcogenide; oxygen group element compound; oxygen compound; **semiconductor**; second row element; element; halogen; thin film; membrane and film; infrared spectrum; optical absorption spectrum; absorption spectrum; binding and coupling; structure

L26 ANSWER 19 OF 46 WPIX (C) 2003 THOMSON DERWENT DUPLICATE 1
AN 1995-188991 [25] WPIX
DNN N1995-148284 DNC C1995-087694
TI **Semiconductor** device mfr. - involves formation of multilayered connection structure by providing infrared ray **absorber** over third TEOS oxide film which separates impurities.
DC L03 U11
PA (TOKE) TOSHIBA KK
CYC 1
PI JP 07106418 A 19950421 (199525)* 7p H01L021-768
ADT JP 07106418 A JP 1993-247820 19931004
PRAI JP 1993-247820 19931004
IC ICM H01L021-768
AB JP 07106418 A UPAB: 19950630
The manufacturing method involves installation of an infrared ray **absorber** on a third TEOS oxide film (27) at a connection hole (26a) of a second TEOS oxide film (26). The above arrangement in formed on a first metal wiring (24). The temperature of the infrared ray **absorber** is set to 350 deg C and an infrared ray is irradiated over that. Thereby the impurities of **Si-F, Si**-OH, Si-H bonds diffuse out the second TEOS oxide film and it creates a low concentration domain (26b) near the connection hole. Then the infrared ray **absorber** is removed and the second metal wiring (29) is formed over the third TEOS oxide film, near the connection film.

ADVANTAGE - Avoids disconnection by poor wiring. Prevents signal delay during high speed and high frequency operation.
Dwg.1/12
FS CPI EPI
FA AB; GI
MC CPI: L04-C10A; L04-C12A; L04-C13B
EPI: U11-C05D1; U11-C05D2

L26 ANSWER 20 OF 46 JICST-EPlus COPYRIGHT 2003 JST DUPLICATE 2
AN 960721433 JICST-EPlus
TI Behavior of **Adsorbed F atoms** on Si Surface after HF Treatment.

AU YAMADA Y
OHSHIMA H
CS Nippondenso Co., Ltd., Aichi, JPN
JRDC, Ibaraki, JPN
SO Shizuoka Daigaku Denshi Kogaku Kenkyujo Kenkyu Hokoku (Bulletin of the Research Institute of Electronics, Shizuoka University), (1995) vol. 30, no. 3, pp. 35-40. Journal Code: S0453A (Fig. 11, Ref. 13)
ISSN: 0286-3383
CY Japan
DT Journal; Article
LA English
STA New
AB Si(111) and Si(100) surfaces treated with a HF solution have been studied using a novel fourier transform infrared reflection absorption spectroscopy (FTIR-RAS) technique for the observation of Si-Fx bond vibration and x-ray photoelectron spectroscopy for the identification of the **adsorbates** on the Si surfaces. From the result on Si(111), two vibration peaks are observed in the range of 905-925 cm-1, and they are assigned to Si-F2 symmetric stretching mode at 918 cm-1 and Si-H2 bending mode at 910 cm-1. The vibration peak of Si-F2 is distinctly decreased in intensity with de-ionized water rinse, though the Si-H2 peak is hardly changed. The vibration peak of **Si-F** is not observed in any spectra. This result indicates that F atoms are selectively **adsorbed** at a step region rather than on a terrace region on the Si(111) surface after HF treatment. The two vibration peaks are also observed on Si(100), and Si-F2 peak decreased with deionized water rinse. However, F atoms on Si(100) are not completely removed even after 1000 sec. rinse. There is a difference in the reduction behavior of F atoms between FTIR-RAS and XPS and it may explain the presence of **adsorbed** compounds including (**Si-F**) bonds on the surface. Moreover, at the early initial stage of de-ionized water rinse of HF-treated sample, a faint increase of the Si-H2 vibration peak intensity is observed without any decrease of Si-F2 peak intensity. (author abst.)
CC NC03020K (621.315.5)
CT silicon; **semiconductor** material; fluorine; hydrogen fluoride(halogenide); adsorption; surface analysis; Fourier spectroscopy; IRAS(spectroscopy); X-ray photoelectron spectroscopy
BT third row element; element; carbon group element; electric material; material; second row element; halogen; hydrogen halogenide; halide; halogen compound; fluoride; fluorine compound; analysis(separation); analysis; spectroscopy; infrared spectroscopy; photoelectron spectroscopy; electron spectroscopy

L26 ANSWER 21 OF 46 JICST-EPlus COPYRIGHT 2003 JST
AN 950243600 JICST-EPlus
TI Synchrotron Radiation Excited Processes. Studies on Photo-Chemical Reactions of SF6 Molecule and **Semiconductor** Surfaces using Synchrotron Radiation.
AU MOCHIJI KOZO
CS Hitachi, Ltd., Cent. Res. Lab.
SO Hoshako (Journal of the Japanese Society for Synchrotron Radiation Research), (1995) vol. 8, no. 1, pp. 16-29. Journal Code: L0956A (Fig. 22, Ref. 26)
ISSN: 0914-9287
CY Japan
DT Journal; Article
LA Japanese

STA New
AB Photo-dissociation of SF6 and photon-stimulated ion desorption from chemically and physically modified Si and GaAs surfaces are investigated by using synchrotron radiation. Excitation of fluorine K and sulfur L levels of SF6 yields highly dissociated and multiply charged ions such as SF2+, S2+, and S3+ that are not seen with valence level excitation. Excitation of sulfur L levels is found to be more dissociative than that of fluorine K levels in the sense that more atomic ions and more multiply charged ions are produced. The generation mechanism for S 3+ is discussed by considering the two-step Auger cascade decay of sulfur L holes. Photon-stimulated desorption of H+, O+, and F+ ions was observed from hydrofluoric(HF) acid treated Si surfaces. The yiels of O+ ions was increased more than 30-fold by exposure to atomic hydrogen before irradiation of synchrotron radiation. Low kinetic energy H+ ions are observed only from HF treated Si surface presumably arising from scission of Si-H bonds while higher kinetic energy H+ ions attributed to **adsorbed** hydrocarbon dissociation are observed both for the HF treated and as-received Si surfaces. By irradiation of synchrotron radiation on SF6-**adsorbed** SiO2 and Si surfaces, ionic products such as **SiF**+ and SO+ are obtained only from SiO2 which corresponds to selective etching of SiO2. Photon-stimulated desorption of Ga+ ions is observed only from chlorine(Cl)-**adsorbed** GaAs(100) surface while Cl+ desorption was observed both from Cl-**adsorbed** GaAs(100) and GaAs(111) B surfaces. The photon energy dependence of Cl+ desorption yield suggests that the photo-ionization of Cl-core levels is much more effective for Cl+ desorption than that of As core levels.(abridged author abst.)
CC BH06120R; BM09070V; CB08020F (539.196:539.122.17; 537.533.2:544.354; 544.522)
CT synchrotron radiation; sulfur fluoride; silicon; **semiconductor**; gallium arsenide; compound **semiconductor**; adsorption; inner shell excitation; ion emission; photodissociation; photodesorption
BT bremsstrahlung; electromagnetic wave; wave motion; electromagnetic radiation; radiation; radioactive ray; nonthermal radiation; sulfur compound; oxygen group element compound; fluoride; halide; halogen compound; fluorine compound; third row element; element; carbon group element; gallium compound; 3B group element compound; arsenide; arsenic compound; nitrogen group element compound; core excitation; excitation(physics); particle emission; emission; dissociation

L26 ANSWER 22 OF 46 JAPIO COPYRIGHT 2003 JPO
AN 1994-047233 JAPIO
TI TREATMENT OF EXHAUST GAS CONTAINING HALOGEN AND HALOGEN COMPOUND
IN FUKUNAGA AKIRA; MORI YOICHI; KYOTANI TAKASHI
PA EBARA INFILCO CO LTD
EBARA RES CO LTD
EBARA CORP
PI JP 06047233 A 19940222 Heisei
AI JP 1992-173739 (JP04173739 Heisei) 19920609
PRAI JP 1992-173739 19920609
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1994
IC ICM B01D053-02
ICS B01D053-34; B01J020-18
AB PURPOSE: To provide a treating method which enables effectively removing halogens and halogen compounds in an exhaust gas from the dry etching stage in the **semiconductor** manufacturing process.
CONSTITUTION: A container of 400mmϕ diameter made of acrylic resin is packed with a silicate having 7 to 16 mesh particle size and 9Å

average pore diameter, up to the 50mm height. Then, N<SB>2</SB> gas contg. **SiF**<SB>4</SB>, F<SB>2</SB>, HCl, Cl<SB>2</SB>, HBr, Br<SB>2</SB> and CCl<SB>4</SB>, in 1% concentration each, is supplied through the silicate at the rate of 0.3 liter/min. Each of the above halogen and halogen compound gases breaks through the silicate when the gas volume fed per 1 liter of the silicate amounts to 19, 60, 47, 20, 53, 31 and 12 liters, respectively. Therefore, a zeolite having 9Å average pore diameter is capable of **adsorbing** halogen and halogen compound gases without exception.

L26 ANSWER 23 OF 46 JICST-EPlus COPYRIGHT 2003 JST

AN 940234120 JICST-EPlus

TI Quantitative Estimation of F and O on Si(100) Surfaces Dipped in Aqueous Solution of HF.

AU OBUKI TOMOHARU; RUSYANTO T
IKEDA MASANORI; NAGASHIMA NAOYUKI

CS Nihon Univ., Graduate School
Nihon Univ., College of Engineering

SO Nihon Daigaku Kogakubu Kiyo. A. Kogakuhen (Journal of the College of Engineering, Nihon University. Series A), (1994) vol. 35, pp. 121-126.
Journal Code: G0810A (Fig. 6, Tbl. 1, Ref. 19)
ISSN: 0285-6174

CY Japan

DT Journal; Article

LA Japanese

STA New

AB The authors calculated the quantities of F and O on Si(100) single crystal wafers dipped in an HF aqueous solution from X-ray photoelectron spectra using the method of T.E. Madey, et al. The amounts of F **adsorbed** on the surfaces of Si were dependent on the HF concentration, but those of O were independent of the HF concentration. Surface densities of O and F+O on the surfaces of Si dipped in a 5%-45% HF aqueous solution were about 2.2-4.8*1014 and 3.9-7.4*1014 atoms/cm2, respectively. We separated the F1s peak into two Gaussian peaks which were 685.6 and 687.4eV corresponding to **Si-F** and **Si**-F2 bonds, respectively. The former is the mainpeak and the latter is the subpeak. The amounts of F corresponding to the subpeaks of F1s were smaller than those of the mainpeaks and dependence upon the HF concentration were smaller also. The surface densities calculated for the subpeaks **adsorbed** on Si surfaces dipped in the 5%-45% HF aqueous solution were about 1.8-8.1*1013 atoms/cm2. Finally, the bonding states of F on the Si surfaces were discussed. (author abst.)

CC BK15030A; CB12043P (539.211:621.315.592; 544.723:53.06)

CT hydrogen fluoride(halogenide); aqueous solution; silicon; **semiconductor**; adsorption; X-ray photoelectron spectrum; fluorine; oxygen; surface structure; surface treatment; impurity distribution

BT hydrogen halogenide; halide; halogen compound; fluoride; fluorine compound; solution(liquid); liquid; third row element; element; carbon group element; photoelectron spectrum; spectrum; second row element; halogen; oxygen group element; structure; treatment; distribution

L26 ANSWER 24 OF 46 COMPENDEX COPYRIGHT 2003 EEI

AN 1994(21):1774 COMPENDEX

TI X-ray photoelectron spectroscopic study of Si(111) and Si(100) surfaces with chemically **adsorbed** bromine.

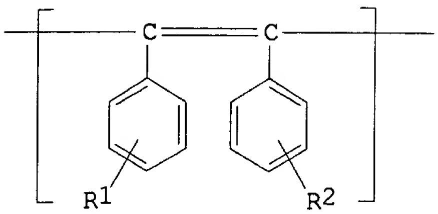
AU Sekar, K. (Inst of Physics, Bhubaneswar, India); Kuri, G.; Mahapatra, D.P.; Dev, B.N.; Ramana, J.V.; Kumar, Sanjiv; Raju, V.S.

SO Surface Science v 302 n 1-2 Jan 1994.p 25-36
CODEN: SUSCAS ISSN: 0039-6028
PY 1994
DT Journal
TC Experimental
LA English
AB The chemical state and the desorption behaviour of bromine **adsorbed** on silicon surfaces have been studied by X-ray photoelectron spectroscopy (XPS), Br was **adsorbed** on hydrofluoric-acid(HF)-etched silicon surfaces from a weak bromine-methanol solution.Initial coverages of Br obtained on Si(111) and Si(100) surfaces were 0.62 and 0.72 monolayers, respectively.On the (111) surface, immediately after sample preparation, the Br 3p3/2 and 3pone half XPS peaks appear at 182.9 and 187.5 eV, respectively. After a storage time of 45 h in ambient air these peaks show a chemical shift of 1.2 eV towards higher binding energy, which is attributed to the formation of the Si-O-Br complex species.Some of these features are not observed for the Si(100) surface, indicating that the chemical state of Br on the (100) surface is different from that on the (111) surface.As HF etching is involved in the sample preparation, there is also **adsorbed** fluorine on the surface. On the (111) surface, immediately after sample preparation, a F 1s peak appears at 685.1 eV with a small shoulder at 687.5 eV.These are attributed to F chemisorption at different sites.The F 1s chemical shift, upon storage in ambient air, also suggests formation of the **Si** -O-**F** species.The Br and F desorption rates and the oxide growth rates are, in general, higher for the (100) than for the (111) surfaces.(Author abstract) 35 Refs.
CC 549.3 Others (including Bismuth, Boron, Cadmium, Cobalt, Mercury, Niobium, Selenium, Silicon, Tellurium and Zirconium); 932.1 High Energy Physics; 802.3 Chemical Operations; 802.2 Chemical Reactions
CT *Silicon; Desorption; Photoelectron spectroscopy; Bromine; Adsorption; Oxygen; Etching; Chemisorption; Surfaces; X ray spectroscopy
ST X ray photoelectron spectroscopy; Hydrofluoric acid etching; **Semiconductor** surface; Surface reconstruction; X ray standing wave; Oxide growth; Chemical shift
ET Br; F*H; HF; H cp; cp; F cp; Si; Br*O*Si; Si-O-Br; F; F*O*Si; Si-O-F

L26 ANSWER 25 OF 46 HCAPLUS COPYRIGHT 2003 ACS
AN 1994:218859 HCAPLUS
DN 120:218859
TI Disubstituted diphenylacetylene-based polymers
IN Ootsubo, Masahito; Watanabe, Kyoshi; Hirokawa, Yoshitsugu
PA Nippon Zeon Co, Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C08F038-00
CC 35-4 (Chemistry of Synthetic High Polymers)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 05271338	A2	19931019	JP 1992-71730	19920327
PRAI	JP 1992-71730		19920327		

GI



I

AB Title polymers for gas- or liq.-sepn. membranes, adsorbents, resist or **semiconductor** materials, etc. have repeating units I [R1 = branched alkyl, trialkylsilyl; R2 = (halo)alkyl, trialkylsilyl, halo]. Thus, 5 mL 0.8M toluene soln. of 4-tert-butyl-3'-methyldiphenylacetylene (prepn. given) was polymd. in the presence of catalyst soln. (prepd. from TaCl5, tetra-n-butyltin, and toluene) at 80.degree. under N for 20 h to give a polymer showing yield 20%, Mw = 720,000, Mw/Mn = 3.6, and 5%-wt.-loss temp. 404.degree.. A gas-sepn. membrane obtained from the polymer, showed gas permeability (at 25.degree.) 2.17 .times. 10-8 (O) and 9.35 .times. 10-9 cm3(STP)-cm/cm2-s-cmHg (N).

ST disubstituted diphenylacetylene polymer sepn membrane; adsorbent disubstituted diphenylacetylene polymer; resist material disubstituted diphenylacetylene polymer; **semiconductor** material disubstituted diphenylacetylene polymer

IT Polyacetylenes, preparation
RL: PREP (Preparation)
(disubstituted di-Ph acetylene-based, prepn. of, for sepn. membranes and adsorbents and resist and **semiconductor** materials)

IT Adsorbents
Electrochromic materials
Semiconductor materials
(disubstituted diphenylacetylene polymers for)

IT Membranes
(gas- or liq.-sepn., disubstituted diphenylacetylene polymers for)

IT Resists
(materials for, disubstituted diphenylacetylene polymers as)

IT 625-95-6, 3-Methyliodobenzene
RL: RCT (Reactant); RACT (Reactant or reagent)
(Heck reaction of, with butylphenylacetylene)

IT 772-38-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(Heck reaction of, with methyliodobenzene)

IT **153404-61-6P** 153404-62-7P 153404-63-8P
RL: PREP (Preparation)
(prepn. of, for sepn. membranes and **adsorbents** and resist and **semiconductor** materials)

IT 64583-19-3 153404-57-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with chlorotrimethylsilane)

IT 75-77-4, Chlorotrimethylsilane, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with dihalodiphenylacetylene)

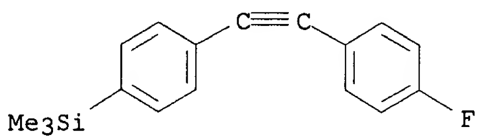
IT **153404-61-6P**
RL: PREP (Preparation)
(prepn. of, for sepn. membranes and **adsorbents** and resist and **semiconductor** materials)

RN 153404-61-6 HCAPLUS

CN Silane, [4-[(4-fluorophenyl)ethynyl]phenyl]trimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 153404-51-4
CMF C17 H17 F Si



L26 ANSWER 26 OF 46 HCAPLUS COPYRIGHT 2003 ACS
AN 1994:174222 HCAPLUS
DN 120:174222
TI Photon stimulated desorption of fluorine from **semiconductor** surfaces
AU Yarmoff, J.A.; Shuh, D.K.; Chakarian, V.; Durbin, T.D.; German, K.A.H.; Lo, C.W.
CS Dep. Phys., Univ. California, Riverside, CA, 92521, USA
SO Springer Series in Surface Sciences (1993), 31(Desorption Induced by Electronic Transitions, DIET V), 253-8
CODEN: SSSSEW; ISSN: 0931-5195
DT Journal
LA English
CC 66-3 (Surface Chemistry and Colloids)
Section cross-reference(s): 73, 76
AB Photon stimulated desorption (PSD) from XeF2-exposed Si (111) and GaAs (100) is measured. The F+ threshold from Si is at 27.5 eV, which corresponds to the transition from F 2s to the conduction band min. (CBM). Features at the Si 2p edge (which distinguish the oxidn. state of the bonding Si) are used to det. the structure of the XeF2 etching reaction layer and to show how metal contaminants trap SiF4 on the surface. For GaAs, the PSD threshold is at .apprx. 6 eV, which corresponds to the transition from F 2p to the CBM. Transitions from the 3d core levels of the bonding Ga and As atoms do not contribute to PSD.
ST photon stimulated desorption fluorine **semiconductor;** silicon xenon fluoride etching PSD; gallium arsenide xenon fluoride etching PSD; metal contaminant surface trapping silicon tetrafluoride
IT Etching
(of **semiconductors**, with xenon difluoride, photon-stimulated desorption study of surface layer from)
IT Desorption
(photo-, of fluorine, from **semiconductors** following xenon fluoride etching)
IT 7440-33-7, Tungsten, properties
RL: PRP (Properties)
(adsorbed, on silicon, surface trapping of silicon tetrafluoride at)
IT 1303-00-0, Gallium arsenide, properties 7440-21-3, Silicon, properties
RL: PRP (Properties)
(desorption from xenon difluoride-etched, photon-stimulated)
IT 14701-13-4, Fluorine(1+), properties
RL: PEP (Physical, engineering or chemical process); PROC (Process)

(desorption of, from **semiconductor** surfaces, photon-stimulated)

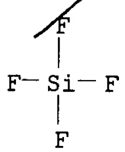
IT 13709-36-9, Xenon difluoride
RL: PRP (Properties)
(photon-stimulated desorption from **semiconductor** surfaces treated with)

IT 7783-82-6, Tungsten hexafluoride
RL: PRP (Properties)
(surface trapping of silicon tetrafluoride at tungsten impurities on silicon surface formed from)

IT **7783-61-1**, Silicon tetrafluoride
RL: PROC (Process)
(surface trapping of, on silicon at **adsorbed** tungsten impurities)

IT **7783-61-1**, Silicon tetrafluoride
RL: PROC (Process)
(surface trapping of, on silicon at **adsorbed** tungsten impurities)

RN 7783-61-1 HCAPLUS
CN Silane, tetrafluoro- (9CI) (CA INDEX NAME)



L26 ANSWER 27 OF 46 COMPENDEX COPYRIGHT 2003 EEI
AN 1993(41):2821 COMPENDEX
TI Laser-assisted low temperature deposition of WSix from WF6 and SiH4.
AU Izquierdo, R. (Ecole Polytechnique de Montreal, Montreal, Que, Can); Desjardins, P.; Elyaagoubi, N.; Meunier, M.
MT Proceedings of the 3rd Biennial Meeting of Chemical Perspectives of Microelectronic Materials.
ML Boston, MA, USA
MD 30 Nov 1992-03 Dec 1992
SO Chemical Perspectives of Microelectronic Materials III Materials Research Society Symposium Proceedings v 282 1993.Publ by Materials Research Society, Pittsburgh, PA, USA,Que.p 209-214
CODEN: MRSPDH ISSN: 0272-9172
ISBN: 1-55899-177-8
PY 1993
MN 18850
DT Conference Article
TC Application; Experimental
LA English
AB A laser direct writing system has been developed for low temperature deposition of WSix on TiN from a gas mixture of WF6 and SiH4.An Ar plus laser (488 nm, 1.5 W) and a diode laser (796 nm, 1.0 W) are used as photon sources.Lines are written at scan speeds of up to 100 mu m/s from a flowing gas mixture of WF6 and SiH4 diluted in Ar.Lines 1.5 to 11 mu m wide and 20 to 180 nm thick are obtained at a writing speed of 100 mu m/s with the Ar plus laser.Lines written using the diode laser are typically 4 to 12 mu m wide and 160 to 860 nm thick.W/Si ratio in the deposits, as measured by Auger electron spectroscopy (AES), is between 1.5 and

1.8.Surface analysis of the interaction of this gas mixture with the TiN surface without laser irradiation shows that W, **Si** and **F** are **adsorbed** on the surface when exposed simultaneously to WF6 and SiH4 producing an **adsorbed** layer where W/Si ratio is 1.3 and F/W ratio 1.7.(Author abstract) 19 Refs.

CC 804.2 Inorganic Components; 933.1.2 Crystal Growth; 744.9 Laser Applications; 744.2 Gas Lasers; 744.4.1 Semiconductor Lasers; 801.1 Chemistry (General)

CT *Tungsten compounds; Surfaces; Silicon compounds; Titanium compounds; Mixtures; Gas lasers; **Semiconductor** lasers; Auger electron spectroscopy; Deposition; Laser applications

ST Laser assisted low temperature deposition; Tungsten silicide; Tungsten fluoride; Silicon hydride; Titanium nitride

ET Si*W; Si sy 2; sy 2; W sy 2; WSix; W cp; cp; Si cp; N*Ti; TiN; Ti cp; N cp; F*W; WF6; F cp; H*Si; SiH4; H cp; W; Si; F

L26 ANSWER 28 OF 46 WPIX (C) 2003 THOMSON DERWENT

AN 1991-219967 [30] WPIX

CR 1991-026765 [04]; 1994-274618 [34]

DNN N1994-119042 DNC C1992-177111

TI Vertically-arranged **semiconductor** power device for compound bipolar elements - has inverted mesa structure, having anode region formed of high resistance layer with predetermined impurity density and a low resistance layer with impurity density higher than that of high-resistance layer.

DC L03 U11 U12

IN FUJINO, S; KATADA, M; TSURUTA, K; YAMAOKA, M

PA (NIJI) NIPPON JIDOSHA BUHIN SOGO; (NSOK) NIPPON SOKEN KK

CYC 2

PI JP 03142952 A 19910618 (199130)*
US 5164218 A 19921117 (199249)B 17p H01L049-00
US 5313092 A 19940517 (199419)B 18p H01L029-06

ADT JP 03142952 A JP 1989-282396 19891030; US 5164218 A Div ex US 1990-521730 19900511, US 1991-731268 19910717; US 5313092 A Cont of US 1990-521730 19900511, US 1992-844889 19920303

PRAI JP 1989-282396 19891030; JP 1989-119268 19890512

IC ICM H01L029-06; H01L049-00
ICS H01L021-76; H01L027-06

AB US 5313092 A UPAB: 19940627 ABEQ treated as Basic
A **semiconductor** device of vertical arrangement includes an anode region formed of a first **semiconductor** substrate and a second **semiconductor** substrate joined together. The first substrate forms a high-resistance layer with a predetermined impurity density, and the second semi-conductor substrate forms a low-resistance layer whose impurity density is higher than that of the high-resistance layer. A PN junction is formed inside the first **semiconductor** substrate.

The periphery of the first **semiconductor** substrate including the PN junction is configured in an inverted mesa structure and coated with an insulation material.

ADVANTAGE - Provides a high withstand voltage, is compact and enables employment of large dia wafer.
Dwg.2/14

AB JP 03142952 A UPAB: 20030320
Resist pattern is obtd injections opt by (a) an ion contg. F into coating film of a resin, of which phenolic hydroxide is silylised, to make the ion injected portion alkali soluble, then (b) opt removing using alkaline developer.

ADVANTAGE - For lithography, forming pattern using stable polymer.

In an example, a resist of formula (I), was coated on a **Si** wafer, **F** ion was injected onto it with required pattern, the portion was made alkali soluble. The injection method had twice the sensitivity compared with electron beam injection and the ion almost **absorbed** in the resist so that fine pattern was formed. The injected portion was not removed by alkaline developer to form a positive pattern. @(4pp Dwg.No.0/1)@

FS CPI EPI
FA AB; GI
MC EPI: U11-C01; U11-C01X; U11-C08A4; U11-C08A6; U11-C18A2; U11-C18B1; U12-D01A9

L26 ANSWER 29 OF 46 JAPIO COPYRIGHT 2003 JPO
AN 1990-143412 JAPIO
TI MANUFACTURE OF SOFT X-RAY OPTICAL ELEMENT
IN OGAWA TARO; MOCHIJI KOZO; KOBAYASHI NOBUYOSHI; SUZUKI MASAYASU; KISHIMOTO AKIHIKO; KIMURA TAKESHI
PA HITACHI LTD
PI JP 02143412 A 19900601 Heisei
AI JP 1988-294709 (JP63294709 Showa) 19881124
PRAI JP 1988-294709 19881124
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1990
IC ICM H01L021-027
ICS G03F001-16; G21K001-06
AB PURPOSE: To enable an optical element having good resolution to be obtained easily with a stencil having a fine size of 0.1μm or less independently from thickness, area, shape or position by depositing a metallic material by a selective CVD process for producing a predetermined soft X-ray **absorber** pattern on a support substrate.
CONSTITUTION: On a membrane material 1 consisting of a laminate of substrates of a conductor or **semiconductor**, there are provided an insulator stencil 2. The membrane material 1 is subjected to atmosphere containing gaseous mixture 3 of tungsten fluoride and hydrogen under a reduced pressure while it is heated. If Si is contained in the membrane material 1, a reacion of ZWF<SB>6</SB>+3Si→2W+3 **SiF** <SB>4</SB> is caused. If the membrane material 1 is conductive, a reaction of WF<SB>4</SB>+3H<SB>2</SB>→W+6HF is caused. In either case, W 4 is deposited in deep holes in the stencil to produce a soft X-ray **absorber** pattern of W. Thus, an mean free path of the reaction gas components is increased by conducting the CVD under a reduced pressure and, thereby, deposition of the W pattern as fine as 0.1μm or less is facilitated.
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L26 ANSWER 30 OF 46 COMPENDEX COPYRIGHT 2003 EEI
AN 1991(6):68813 COMPENDEX DN 910672866
TI Influence of the surface electron processes on the kinetics of silicon etching by fluorine atoms.
AU Babanov, Yu E. (Inst of Microelectronics, Yaroslavl, USSR); Prokaznikov, A.V.; Svetovoy, V.B.
MT Selected Proceedings of the 11th International Vacuum Congress - (IVC-11) and 7th International Conference on Solid Surfaces - (ICSS-7).
ML Cologne, West Ger
MD 25 Sep 1989-29 Sep 1989
SO Vacuum v 41 4-6 Pt2 1990.p 902-905
CODEN: VACUAV ISSN: 0042-207X
PY 1990
MN 13767

DT Journal
TC Experimental; Theoretical
LA English
AB The model of silicon etching by fluorine atoms is presented.It is shown that the dielectric SiFx film formed on the surface plays an important part in the etching.As a consequence of high heat of adsorption for fluorine atoms on this film its penetration under the surface by thermal activation is difficult.A specific mechanism explaining the origin of the electric field in the film is proposed.The process of electric field formation is connected with valence electrons tunneling from silicon to **adsorbed** fluorine.The analysis of the electron processes in the **Si**-SiFx-**F** system results in non-linear equations which can be used to calculate the electric field strength and etch rate in a stationary regime.In the proposed model non-activated fluorine penetration into the SiFx film is provided and essential experimental results can be explained.(Author abstract) 22 Refs.
CC 712 Electronic & Thermionic Materials; 804 Chemical Products; 931 Applied Physics; 708 Electric & Magnetic Materials
CT *SEMICONDUCTING SILICON:Etching; SURFACES; FLUORINE:Applications; **SEMICONDUCTOR** MATERIALS:Doping; DIELECTRIC MATERIALS; FILMS:Dielectric
ST SURFACE ELECTRON PROCESSES; THERMAL ACTIVATION; SURFACE BARRIER
ET F*Si; SiFx; Si cp; cp; F cp; F sy 2; sy 2; Si sy 2; Si-SiFx-F

L26 ANSWER 31 OF 46 INSPEC COPYRIGHT 2003 IEE
AN 1989:3457294 INSPEC DN A89115108
TI Determination of the fluoride content in a-**Si**:H:**F** by infrared spectroscopy, electron probe microanalysis, X-ray photoelectron spectroscopy, and secondary ion mass spectrometry.
AU Langford, A.A.; Fleet, M.L.; Nelson, A.J.; Asher, S.E.; Goral, J.P.; Mason, A. (Solar Energy Res. Inst., Golden, CO, USA)
SO Journal of Applied Physics (15 June 1989) vol.65, no.12, p.5154-60. 24 refs.
Price: CCCC 0021-8979/89/125154-07$02.40
CODEN: JAPIAU ISSN: 0021-8979
DT Journal
TC Experimental
CY United States
LA English
AB The authors have measured the fluorine content in a-**Si**:H:**F** with 0%-10% F by electron probe microanalysis (EPMA) X-ray photoelectron spectroscopy (XPS), secondary ion mass spectroscopy (SIMS), and infrared (IR) spectroscopy. The techniques differ in accuracy and availability of calibration standards. EPMA is the most reliable of these measurements, with a calibration to internal standards that is accurate to +or-1 at.% F. XPS measures only the top 30 AA which, after Ar+ sputtering, has 2.0+or-0.3 times less fluorine than the bulk. They compared SIMS to EPMA and XPS and found that the ratio of the **F/Si** SIMS intensities is linear in F content. The sum of the integrated IR **absorbances** of the **Si-F** stretches is proportional to the F content with 11+or-1 cm-1/at.% F. After correcting for the systematic variation in Si density with F content, this gives an average absorption cross section of 16+or-1 cm2/mM. The correlation between IR **absorbance** and F content is contrasted with previous reports and they find that this cross section may be applied to a-**Si**:H:**F** and a-SiGe:H:F deposited by photochemical vapor deposition or glow discharge. As IR spectroscopy is a readily available technique, this will facilitate the reporting of F content and thus allow

comparisons between different studies of fluorinated materials.

CC A6855 Thin film growth, structure, and epitaxy; A8280P Electron spectroscopy for chemical analysis (photoelectron, Auger spectroscopy, etc.); A8280M Mass spectrometry; A7830L Disordered solids; A6170R Crystal impurities: general; A7960E Semiconductors and insulators; A7920N Atom, molecule, and ion impact; A7865J Nonmetals

CT AMORPHOUS **SEMICONDUCTORS**; CVD COATINGS; ELECTRON PROBE ANALYSIS; ELEMENTAL **SEMICONDUCTORS**; FLUORINE; HYDROGEN; INFRARED SPECTRA OF INORGANIC SOLIDS; PLASMA DEPOSITED COATINGS; SECONDARY ION MASS SPECTRA; SILICON; X-RAY PHOTOELECTRON SPECTRA

ST **amorphous semiconductors**; F content evaluation; CVD films; plasma deposited films; infrared spectroscopy; electron probe microanalysis; X-ray photoelectron spectroscopy; secondary ion mass spectrometry; accuracy; calibration standards; EPMA; internal standards; XPS; SIMS; **integrated IR absorbances; Si-F stretches;** absorption cross section; photochemical vapor deposition; glow discharge; fluorinated materials; Ar+ sputtering; **Si:H,F**

CHI Si:H,F ss, Si ss, F ss, H ss, Si el, F el, H el, F dop, H dop; Ar el

ET F*H*Si; Si:H:F; H:F doping; doped materials; F; Ar; Ar+; Ar ip 1; ip 1; F*Si; Si-F; Si; F*Ge*H*Si; F sy 4; sy 4; Ge sy 4; H sy 4; Si sy 4; SiGe:H:F; Si cp; cp; Ge cp; H*Si; Si:H; H doping

L26 ANSWER 32 OF 46 HCAPLUS COPYRIGHT 2003 ACS

AN 1989:81789 HCAPLUS

DN 110:81789

TI Absorbent for harmful gas

IN Fukunaga, Akira; Arimitsu, Hidenobu; Yasuhara, Yoshiharu; Shioda, Toshihiko

PA Ebara Sogo Kenkyusho K. K., Japan; Ebara Corp.; Ebara-Infilco Co., Ltd.

SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM B01J020-26
ICS B01D053-34

CC 59-4 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 57, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 63232844	A2	19880928	JP 1987-211310	19870827
	US 4826805	A	19890502	US 1987-105239	19871007
PRAI	JP 1986-237003		19861007		
	JP 1987-211310		19870827		

AB The title absorbent comprises an alkali agent, moisture and a high-efficiency H2O-absorbing resin as effective ingredient to remove SiF4 and/or BCl3. The absorbent has the advantage of the high reaction rate of the wet absorption method and the simplicity of the dry method. Thus, 100 g each 1 mm granular Ca(OH)2 (A), granulated diatomaceous earth impregnated with 30 wt. parts 10% NaOH (B), and 20 g granular water-absorbing resin [poly(vinyl alc.) 1 mm .times. 2 mm .times. 3 mm] contg. 30 g moisture mixed with 50 g 1 mm Ca(OH)2 (C) was packed in a 40 mm diam. column, through which was passed a 20% SiF4 gas (80% N2). The SiF4 absorption for A, B and C was 61, 13 and 75 NL/kg, resp. and the gas flow resistance was 160, 20 and 25 mmH2O, resp.

ST waste gas treatment absorbent; toxic gas water absorbing resin; hazardous waste gas absorbent resin; gas absorption water absorbing resin

IT Lime (chemical)

RL: OCCU (Occurrence)
(absorbent contg. water-absorbing resin and, for waste gas treatment)

IT Waste gases
(silicon fluoride and boron chloride removal in, with absorbents contg. alkali agents and water-absorbing resins)

IT Ceramic materials and wares
Semiconductor materials
(waste gas from manuf. of, silicon fluoride and boron chloride removal in)

IT 1309-42-8, Magnesium hydroxide 1310-73-2, Sodium hydroxide, uses and miscellaneous
RL: OCCU (Occurrence)
(absorbent contg. water-absorbing resin and, for waste gas treatment)

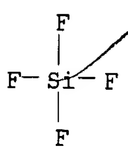
IT **7783-61-1**, Silicon fluoride (SiF_4) 10294-34-5, Boron chloride (BCl_3)
RL: REM (Removal or disposal); PROC (Process)
(removal of, by absorption, from waste gases, **absorbent** for)

IT 79-10-7D, Acrylic acid, polymers 9002-89-5, Poly(vinyl alcohol) 9004-34-6D, Cellulose, polymers
RL: OCCU (Occurrence)
(water-absorbing resins, absorbents contg. alkali agents and, for waste gas treatment)

IT **7783-61-1**, Silicon fluoride (SiF_4)
RL: REM (Removal or disposal); PROC (Process)
(removal of, by absorption, from waste gases, **absorbent** for)

RN 7783-61-1 HCAPLUS

CN Silane, tetrafluoro- (9CI) (CA INDEX NAME)



L26 ANSWER 33 OF 46 JAPIO COPYRIGHT 2003 JPO

AN 1988-197955 JAPIO

TI ELECTROPHOTOGRAPHIC SENSITIVE BODY

IN WAKAGI MASATOSHI; TAMAHASHI KUNIHIRO; ONO TOSHIYUKI; KONUMA SHIGEHARU; ISHIKAWA NORITOSHI; CHIKAZAKI MITSUO

PA HITACHI LTD

PI JP 63197955 A 19880816 Showa

AI JP 1987-28254 (JP62028254 Showa) 19870212

PRAI JP 1987-28254 19870212

SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1988

IC ICM G03G005-08

AB PURPOSE: To enhance sensitivity to **semiconductor** laser beams, humidity resistance, and corona resistance by forming an a-SiGe:H layer on an a-Si:H layer and an a-**Si**:H,**F** layer on said a-SiGe:H layer.
CONSTITUTION: The amorphous silicon layer containing C and H (a-SiC:H) 2, the amorphous silicon layer containing Ge and H (a-SiGe:H) 3, and the amorphous silicon layer containing H and/or **F** (a-**Si**:H:**F**) 4 are laminated on a conductive substrate 1, thus permitting long wavelength lights to be **absorbed** and production of SiO due to corona discharge to be avoided, accordingly, the obtained

photosensitive body to be enhanced in sensitivity to long wavelength lights, and to form prints free from image flow even under high humidity.

L26 ANSWER 34 OF 46 HCAPLUS COPYRIGHT 2003 ACS
AN 1987:605633 HCAPLUS
DN 107:205633
TI Silicon-fluorine bond directions on silicon(110). A study by ESDIAD
AU Bozack, M. J.; Dresser, M. J.; Choyke, W. J.; Taylor, P.; Yates, J. T.
CS Surf. Sci. Cent., Pittsburgh Univ., Pittsburgh, PA, USA
SO Report (1987), TR-11; Order No. AD-A175884/6/GAR, 19 pp. Avail.: NTIS
From: Gov. Rep. Announce. Index (U. S.) 1987, 87(8), Abstr. No. 713,717
DT Report
LA English
CC 66-1 (Surface Chemistry and Colloids)
Section cross-reference(s): 76
AB The 1st observation of ion angular distribution originating from electron stimulated desorption of an **adsorbed** at. species on a **semiconductor** surface (ESDIAD) is described. F+ is emitted from Si(100)-(2.times.1) along 4 azimuths corresponding to the principal crystal axes. The most probable F+ energy is 2.4 eV. The F+ angle, .alpha. = 36 .+-. 5.degree. to the surface normal, corresponds closely to the **Si-F** surface bond direction. This F+ angular distribution is consistent with F bonding to Si dimers which are in 2 orthogonal reconstructions on Si(100)-(2 .times. 1). The threshold electron energy, VTc = 27.5 .+-. 1 eV for F+ prodn. from the **Si-F** surface species.
ST silicon fluorine bond surface; electron stimulated desorption silicon
IT **Adsorbed** substances
(fluorine, on silicon, bond direction of)
IT Desorption
(of fluorine from silicon surface, electron-stimulated)
IT Bond
(fluorine-silicon, at silicon surface)
IT 7440-21-3, properties
RL: PRP (Properties)
(fluorine-silicon bond direction on, electron-stimulated desorption study of)
IT 7782-41-4, Fluorine, properties
RL: PRP (Properties)
(silicon-fluorine bond direction on silicon contg. **adsorbed**, electron-stimulated desorption study of)

L26 ANSWER 35 OF 46 NTIS COPYRIGHT 2003 NTIS
AN 1987(13):04021 NTIS Order Number: AD-A175 884/6/XAB
TI **Si-F** Bond Directions on Si(100). A Study by ESDIAD.
Technical rept.
AU Bozack, M. J.; Dresser, M. J.; Choyke, W. J.; Taylor, P.; Yates, J. T.
CS Pittsburgh Univ., PA. Surface Science Center. (005269147 414114)
NR AD-A175 884/6/XAB; TR-11
19p; 5 Jan 1987
NC Contract(s): N00014-82-K-0280
DT Report
CY United States
LA English
AV Order this product from NTIS by: phone at 1-800-553-NTIS (U.S. customers); (703)605-6000 (other countries); fax at (703)605-6900; and email at orders@ntis.gov. NTIS is located at 5285 Port Royal Road,

Springfield, VA, 22161, USA.
NTIS Prices: PC A02/MF A01

OS GRA&I8708

AB The first observation of ion angular distribution originating from electron stimulated desorption of an **adsorbed** atomic species on a **semiconductor** surface (ESDIAD) is described. F+ is emitted from Si(100)-(2 x 1) along 4 azimuths corresponding to the principal crystal axes. The most probable F+ energy is 2.4 eV. The F+ angle, alpha = 36 + or - 5 degrees to the surface normal, corresponds closely to the **Si-F** surface bond direction. This F+ angular distribution is consistent with F bonding to Si dimers which are in two orthogonal reconstructions on Si(100)-(2 x 1). The threshold electron energy, (V sub T) superscript c = 27.5 + or - 1 eV for F+ production from the **Si-F** surface species.

CC 99F Physical and theoretical chemistry
46D Solid state physics

CT *Desorption; *Fluorine; *Silicon; Angles; Distribution; Electron energy; Electrons; **Semiconductors**; Stimulation(General); Surfaces; Threshold effects; Surface chemistry; Chemical bonds; Crystal structure; Auger electron spectroscopy; Czochralski crystals
*ELECTRON STIMULATED DESORPTION

L26 ANSWER 36 OF 46 JAPIO COPYRIGHT 2003 JPO

AN 1987-203331 JAPIO

TI VAPOR GROWTH OF **SEMICONDUCTOR**

IN OGAWA MASAKI

PA NEC CORP

PI JP 62203331 A 19870908 Showa

AI JP 1986-46662 (JP61046662 Showa) 19860303

PRAI JP 1986-46662 19860303

SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1987

IC ICM H01L021-205
ICS H01L021-263

AB PURPOSE: To form an extremely thin **semiconductor** layer on a **semiconductor** substrate by supplying gas of fluoride of a group IV element and gas of hydride of a group IV element alternately.
CONSTITUTION: The pressure in a container 1 is made to be 1×10<SP>-8</SP> Pascal at first and then maintained at 1×10<SP>-2</SP> Pascal by introducing **SiF**<SB>4</SB> and a single- atom layer of **SiF**<SB>4</SB> is **adsorbed** on an Si substrate 2. After the **adsorbed** quantity reaches the saturated value, the supply of **SiF**<SB>4</SB> is discontinued. After the pressure reaches 1×10<SP>-7</SP> Pascal, it is maintained at 1×10<SP>-2</SP> Pascal again by introducing SiH<SB>4</SB>. Substituting reaction is induced through the process of SiH<SB>4</SB> adsorption and produced HF is exhausted immediately and a double-atom layer of Si is made to grow. By the application of ultraviolet rays, the quality of Si is improved. Then the supply of SiH<SB>4</SB> is discontinued and again **SiF**<SB>4</SB> and then SiH<SB>4</SB> are introduced in the same way. By repeating the process, an extremely thin Si film with a required thickness can be formed.

L26 ANSWER 37 OF 46 HCAPLUS COPYRIGHT 2003 ACS

AN 1988:27351 HCAPLUS

DN 108:27351

TI The role of single and multi-electron excitations in electron stimulated desorption

AU Avouris, P.; Bozso, F.; Rossi, A. R.
CS T. J. Watson Res. Cent., IBM, Yorktown Heights, NY, 10598, USA
SO Materials Research Society Symposium Proceedings (1987), 75(Photon, Beam, Plasma Stimul. Chem. Processes Surf.), 591-7
CODEN: MRSPDH; ISSN: 0272-9172
DT Journal
LA English
CC 66-3 (Surface Chemistry and Colloids)
Section cross-reference(s): 65
AB The nature of the electronic transitions was investigated for transitions which lead to the desorption of ions from **adsorbate**-covered metal and **semiconductor** surfaces. F+ desorption from **F** /**Si** occurs via a Knotek-Feibelman mechanism, while H+ desorption from H/Si and O+ from CO/metals involve multi-electron transitions. The desorption of CO+ from CO/metals and NO+ from NO/Si apparently occurs via a simple Menzel-Gomer-Redhead mechanism.
ST desorption multielectron excitation electron stimulated; fluorine cation desorption silicon Knotek Feibelman; proton desorption silicon multielectron excitation; oxygen cation desorption silicon multielectron excitation; silicon desorption electron stimulated; carbon monoxide desorption metal electron stimulated; nitric oxide cation desorption mechanism

IT Desorption
(electron-beam-induced, of ions from **adsorbed** mols. on metals or silicon, multi-electron excitation in)

IT Energy level excitation
(multielectron, in electron-stimulated desorption)

IT 10102-43-9, Nitric oxide, properties
RL: PRP (Properties)
(desorption of cations from silicon coated with, mechanism of)

IT 7782-41-4, Fluorine, properties
RL: PRP (Properties)
(desorption of fluorine atom cation from adlayer of, on silicon, electron-stimulated, mechanism of)

IT 7440-21-3, Silicon, properties
RL: PRP (Properties)
(desorption of ions from fluorine- and hydrogen- and nitric oxide-coated surface of, electron-stimulated)

IT 7440-02-0, Nickel, properties
RL: PRP (Properties)
(desorption of oxygen at. cation from carbon monoxide coated surface of, multielectron transition in mechanism of)

IT 12144-04-6, Carbon monoxide(1+), properties
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(desorption of, from carbon monoxide-coated methyls, mechanism of)

IT 14581-93-2, Oxygen atom(1+), properties
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(desorption of, from carbon monoxide-coated nickel, multi-electron transition in mechanism of)

IT 14701-13-4, properties
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(desorption of, from fluorine-coated silicon, electron-stimulated, mechanism of)

IT 14452-93-8, Nitrogen monoxide(1+)
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(desorption of, from nitric oxide-coated silicon, mechanism of electron-stimulated)

IT 1333-74-0, properties

RL: PEP (Physical, engineering or chemical process); PROC (Process)
(desorption of, from silicon)

L26 ANSWER 38 OF 46 HCAPLUS COPYRIGHT 2003 ACS
AN 1987:465294 HCAPLUS
DN 107:65294
TI Silicon-fluorine bond directions on silicon(100) - a study by ESDIAD
AU Bozack, M. J.; Dresser, M. J.; Choyke, W. J.; Taylor, P. A.; Yates, J. T., Jr.
CS Surf. Sci. Cent., Univ. Pittsburgh, Pittsburgh, PA, 15260, USA
SO Surface Science (1987), 184(1-2), L332-L338
CODEN: SUSCAS; ISSN: 0039-6028
DT Journal
LA English
CC 66-3 (Surface Chemistry and Colloids)
AB The first observation is reported of ion angular distributions originating from electron stimulated desorption of an **adsorbed** at. species on a **semiconductor** surface (ESDIAD). The F+ is emitted from Si(100)-(2 .times. 1) along 4 azimuths corresponding to the principal crystal axes. The most probable F+ energy is 2.4 eV. The F+ emission angle, .alpha. .apprxeq. 36.degree. .+-. 5.degree. to the surface normal, corresponds closely to the **Si-F** surface bond direction. This F+ angular distribution is consistent with F bonding to Si dimers which are in 2 orthogonal reconstructions on Si(100)-(2 .times. 1). The threshold electron energy, VTc = 27.5 .+-. 1 eV for F+ prodn. from the **Si-F** surface species.
ST silicon fluorine bond direction surface; electron stimulated desorption fluorine silicon; ion angular distribution fluorine desorption
IT Chemisorbed substances
(fluorine, on silicon, ESDIAD study of)
IT Desorption
(electron-beam-induced, of fluorine from silicon)
IT Bond
(fluorine-silicon, on silicon surface, electron stimulated desorption-ion angular distribution study of)
IT 7440-21-3, Silicon, properties
RL: PRP (Properties)
(chemisorb fluorine on, ESDIAD study of)
IT 7782-41-4, Fluorine, properties
RL: PRP (Properties)
(chemisorb, on silicon, ESDIAD study of)

L26 ANSWER 39 OF 46 JAPIO COPYRIGHT 2003 JPO
AN 1986-145824 JAPIO
TI SELECTIVE FORMATION OF **SEMICONDUCTOR** THIN FILM
IN YAMABE KIKUO
PA TOSHIBA CORP
PI JP 61145824 A 19860703 Showa
AI JP 1984-267337 (JP59267337 Showa) 19841220
PRAI JP 1984-267337 19841220
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1986
IC ICM H01L021-205
ICS H01L021-263
AB PURPOSE: To suppress surface movement of **absorbed** atoms and selectively form a **semiconductor** thin film by combining different kinds of atoms to the uncombined hand of atom exposed at the surface of **semiconductor** substrate.
CONSTITUTION: The atoms at the silicon surface from where the natural

oxide film 2 is etched has the uncombined hand and is in the condition as easily **absorbing** atoms. Therefore, when the fluorine gas F2 is sprayed to the silicon surface, the surface can easily be covered with the **Si-F** combination. The ambience is changed to the silane gas, the ArF laser beam 4 is condensed to the surface of silicon substrate 1 in order to separate the F atoms **absorbed** to the surface and accelerate reaction between the silane gas and silicon substrate at the surface and the silicon atom 3 is deposited in the irradiation region. At the unirradiated region, the F atoms are still **absorbed**, spreading of atoms is suppressed by the surface movement of silicon atom 3 and the silicon atoms are deposited only at the irradiated region.

L26 ANSWER 40 OF 46 HCAPLUS COPYRIGHT 2003 ACS
AN 1985:582992 HCAPLUS
DN 103:182992
TI Absorbent for treating gases containing the materials used for **semiconductor** products and process of treating these gases with them
IN Kitayama, Masayasu; Sugimori, Yoshiaki; Ohta, Schunich
PA Japan Oxygen Co., Ltd., Japan
SO U.S., 7 pp.
CODEN: USXXAM
DT Patent
LA English
IC ICM B01J020-04
ICS B01J020-14; B01J020-10
NCL 502411000
CC 59-4 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 76
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4535072	A	19850813	US 1983-531345	19830912
	JP 59049822	A2	19840322	JP 1982-160396	19820914
	JP 61051935	B4	19861111		
	US 4784837	A	19881115	US 1985-764427	19850809
PRAI	JP 1982-160396		19820914		
	US 1983-531345		19830912		

AB An absorbent for treating a gas contg. .gtoreq.1 volatile inorg. hydride and/or halide and/or organometallic compd. is prepd. by impregnating an aq. soln. of NaOH, KOH, and/or Ca(OH)2 into a porous carrier. An oxidizing agent, capable of oxidizing GeH4, e.g., KMnO4, KBrO3, H2O2, or NaOCl, many be included. The porous carrier may contain a large proportion of inorg. silicate, e.g., diatomaceous earth, Ca silicate, or bentonite. Thus, an absorbent was prepd. by impregnating 100 g diatomaceous earth with 150 g aq. soln. of 10 wt.% NaOH and 100 g were put in a column. A gas mixt. contg. 10.5 vol.% SiH4 was passed through at 100 cm3/min and after 30 min the outlet SiH4 concn. was .ltoreq.5 ppm.
ST hydride gas absorbent impregnated alkali; halide gas absorbent impregnated alkali; organometallic gas absorbent impregnated alkali; **semiconductor** manuf waste gas absorbent
IT Bentonite, uses and miscellaneous
RL: USES (Uses)
(binder, in alkali-contg. absorbents, for halide and hydride and organometallic gas removal from waste gases)
IT Waste gases
(halide and hydride and organometallic gas removal from, from

semiconductor manufg., alkali-contg. absorbents for)

IT Organometallic compounds
RL: REM (Removal or disposal); PROC (Process)
(removal of, from **semiconductor** manufg. waste gases, absorbents for, alkali metal hydroxide in)

IT Halides
Hydrides
Hydrogen halides
RL: REM (Removal or disposal); PROC (Process)
(removal of, from **semiconductor** manufg. waste gases, absorbents for, alkalies in)

IT **Semiconductor** materials
(waste gases from manuf. of, absorbents for treatment of, alkali-contg.)

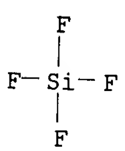
IT 1305-62-0, uses and miscellaneous 1310-58-3, uses and miscellaneous 1310-73-2, uses and miscellaneous
RL: USES (Uses)
(absorbent contg., for halide and hydride and organometallic gas removal, from **semiconductor** manufg. waste gases)

IT 7681-52-9 7722-64-7 7722-84-1, uses and miscellaneous 7758-01-2
RL: OCCU (Occurrence)
(oxidizing agent, alk. absorbent contg., for halide and hydride and organometallic gas removal, from **semiconductor** manufg. waste gases)

IT 75-24-1 1445-79-0 4109-96-0 7637-07-2, uses and miscellaneous 7647-01-0, uses and miscellaneous 7782-65-2 7783-06-4, uses and miscellaneous 7783-07-5 **7783-61-1** 7784-34-1 7784-42-1 7803-51-2 7803-62-5, uses and miscellaneous 10294-34-5 19287-45-7
RL: REM (Removal or disposal); PROC (Process)
(removal of, from **semiconductor** manufg. waste gases, **absorbents** for, alkalies in)

IT **7783-61-1**
RL: REM (Removal or disposal); PROC (Process)
(removal of, from **semiconductor** manufg. waste gases, **absorbents** for, alkalies in)

RN 7783-61-1 HCAPLUS
CN Silane, tetrafluoro- (9CI) (CA INDEX NAME)



L26 ANSWER 41 OF 46 JAPIO COPYRIGHT 2003 JPO
AN 1984-094472 JAPIO
TI MANUFACTURE OF PHOTOELECTRIC CONVERSION **SEMICONDUCTOR** DEVICE
IN YAMAZAKI SHUNPEI
PA SEMICONDUCTOR ENERGY LAB CO LTD
PI JP 59094472 A 19840531 Showa
AI JP 1982-204178 (JP57204178 Showa) 19821120
PRAI JP 1982-204178 19821120
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1984
IC ICM H01L031-04
AB PURPOSE: To improve the conversion efficiency of a photoelectric

conversion **semiconductor** device which uses a nonsingle crystal **semiconductor** by forming back surface electrodes in a double layer structure of a conductive light transmittance film and a reflecting metal film, thereby preventing the reaction of the metal with the **semiconductor.**
CONSTITUTION: A light transmittance conductive film (CTF) 2 which mainly contains an SnO<SB>2</SB> is grown in vapor phase on a glass plate 1, a surface layer is particularly formed of P type SnO<SB>2</SB> (10% or less of SbO-addition), and an amorphous layer 3 of Si<SB>x</SB>C<SB>1-x</SB> (where x is 0.7∼0.8) is laminated in the order of PIN. The layer 3 is formed by a plasma reaction using SiH<SB>4</SB>, **SiF**<SB>2</SB> at 400°C or lower, or a reduced pressure vapor phase growth with Si<SB>2</SB>H<SB>6</SB> at 250∼500°C. Further, a CTF5 which mainly contains ITO and 10wt% or less of SnO<SB>2</SB> is accumulated by electron beam deposition or vapor phase grown at approx. 700∼2,000Å, thereby preventing the degassing of H<SB>2</SB> or halogen in the layer 3. Then, aluminum or Ag 6 is deposited at 450°C or lower in a thickness of approx. 0.1∼2μm to form a reflecting film. According to this configuration, a short wavelength light of 500nm or shorter is **absorbed** by forth passage, and a long wavelength light is reflected, photocarrier is then generated, thereby improving the conversion efficiency, and deterioration with time does not occur owing to the intermediary of the CTF5.

L26 ANSWER 42 OF 46 JAPIO COPYRIGHT 2003 JPO
AN 1984-061123 JAPIO
TI MANUFACTURE OF **SEMICONDUCTOR** DEVICE
IN ITO TAKASHI
PA FUJITSU LTD
PI JP 59061123 A 19840407 Showa
AI JP 1982-172021 (JP57172021 Showa) 19820930
PRAI JP 1982-172021 19820930
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1984
IC ICM H01L021-205
ICS H01L021-263; H01L021-302; H01L021-31
AB PURPOSE: To accomplish the formation of or processing on a thin film in a clean atmosphere with an excellent controllability without generation of defects and the like on the substrate by a method wherein a radical or an ion required for reaction is formed and used.
CONSTITUTION: CF<SB>4</SB> gas is introduced into a reaction chamber 1 from a gas feeding tube 4, and the used gas is exhausted from an exhaust tube 5. A laser light 7 of 249nm in wavelength is irradiated from a laser light source 6, a laser light 7 is made incident to a reaction chamber 1 through the intermediary of a light-transmissing window 8. In the reaction chamber 1, the CF<SB>4</SB> gas **absorbs** and dissociates the laser light 7, thereby enabling to generate an active reaction seed 9. When the generated reaction seed 9 comes in contact with a silicon substrate 3, an etching is performed on the silicon by the help of the next reaction to be performed. To be more precise, the form of Si+4F*→**SiF**<SB>4</SB>↑ is obtained and, at this point, F* indicates an active fluororadical or an ion. Through these procedures, no impact is given at all by the ion having a large kinetic energy, and the performance of a clean etching or the growth of a thin film can be accomplished.

L26 ANSWER 43 OF 46 JAPIO COPYRIGHT 2003 JPO

AN 1983-015231 JAPIO
TI MANUFACTURE OF AMORPHOUS **SEMICONDUCTOR**
IN MORI KOSHIRO; KITAGAWA MASATOSHI; ONO MASAHARU; HIRAO TAKASHI; ISHIHARA SHINICHIRO
PA MATSUSHITA ELECTRIC IND CO LTD
PI JP 58015231 A 19830128 Showa
AI JP 1981-113949 (JP56113949 Showa) 19810720
PRAI JP 1981-113949 19810720
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1983
IC ICM H01L021-205
ICS H01L031-04
AB PURPOSE: To attain amorphous Si solar batteries having an improved interface characteristic by a method wherein amorphous Si is deposited while continuously changing deposition power.
CONSTITUTION: Several kinds of gases within a bomb box 4 are introduced to a vacuum vessel 3 via a gas mixture 5, and glow discharge is generated with DC or RF voltage from the power supply source 2, so that amorphous Si is deposited on a substrate 7. To form P type amorphous Si 9 and control its activation energy at 0.2∼0.3 eV, B<SB>2</SB>H<SB>6</SB> is added to **SiF**<SB>4</SB> in percentage of ca. 1%, whereby B taken in Si exists as a light **absorbing** layer in the form of P type acceptors, trap levels and Si-B couplings. BY performing deposition in a manner that deposition power is continuously reduced near the final intersurface of the P type deposited layer 9 and it is again continuously increased from a point shifting to deposition of an i-type layer 10, it becomes possible to attain solar bateries having good characteristic. This deposition method is also applicable to when deposition is shifted from the i type layer 10 to an n type layer 11.

L26 ANSWER 44 OF 46 HCAPLUS COPYRIGHT 2003 ACS
AN 1984:34005 HCAPLUS
DN 100:34005
TI Electron-vibrational mechanism of formic acid decomposition on a **semiconductor** surface: modified silicon
AU Golovanova, G. F.; Kiselev, V. F.; Silaev, E. A.; Stepanova, T. S.
CS Mosk. Gos. Univ., Moscow, USSR
SO Kinetika i Kataliz (1983), 24(5), 1173-9
CODEN: KNKTA4; ISSN: 0453-8811
DT Journal
LA Russian
CC 22-8 (Physical Organic Chemistry)
AB Photochem. generated electrons and holes on Cr- and **F**-modified **Si** surfaces participated in the dehydration and dehydrogenation of HCO2H. The quantum yield of the photoreactions depended on the energy of the vibrational modes of the **adsorbed** complexes.
ST formic acid photolysis modified silicon; dehydrogenation photochem formic acid silicon; dehydration photochem formic acid silicon
IT Dehydration, chemical
Dehydrogenation
(photochem., of formic acid on modified silicon surface, mechanism of)
IT 7440-21-3, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for decompn. of formic acid, effect of chromium and fluorine on)
IT 64-18-6, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(decompn. of, on modified silicon surface, mechanism of)

IT 7440-47-3, uses and miscellaneous 7782-41-4, uses and miscellaneous
RL: PRP (Properties)
(effect of, on silicon catalysts for formic acid decompn.)

L26 ANSWER 45 OF 46 JAPIO COPYRIGHT 2003 JPO
AN 1982-156317 JAPIO
TI PURIFICATION OF SILICON TETRAFLUORIDE
IN OTSUKA TOYOZO; KITSUGI NAOMICHI; FUJINAGA TERUO
PA CENTRAL GLASS CO LTD
PI JP 57156317 A 19820927 Showa
AI JP 1981-37824 (JP56037824 Showa) 19810318
PRAI JP 1981-37824 19810318
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1982
IC ICM C01B033-10
AB PURPOSE: Crude silicon tetrafluoride containing impurities such as oxygen-containing silicon fluorides is brought into contact with activated carbon to **adsorb** impurities and give high-purity silicon tetrafluoride.
CONSTITUTION: Crude silicon tetrafluoride containing oxygen-containing silicon fluorides such as SiOF<SB>2</SB>, (**SiF**<SB>2</SB>)<SB>2</SB>O, (**SiF**<SB>2</SB>)<SB>2</SB>**SiF**<SB>2</SB>O<SB>2</SB> and other impurities such as sulfides is passed through a column filled with activated carbon to remove these impurities. Thus, high-purity silicon tetrafluoride suitably used to make silicon **semiconductors** is obtained.

* L26 ANSWER 46 OF 46 JAPIO COPYRIGHT 2003 JPO CURRENT APPLICATION!
AN 2001-284443 JAPIO
TI STORING/CARRYING VESSEL FOR **SEMICONDUCTOR** BOARD AND METHOD FOR MANUFACTURING **SEMICONDUCTOR** DEVICE
IN SUZUKI TATSUYA
PA NEC CORP
PI JP 2001284443 A 20011012 Heisei
AI JP 2000-100942 (JP2000100942 Heisei) 20000403
PRAI JP 2000-100942 20000403
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2001
IC ICM H01L021-68
ICS B65D085-86
AB PROBLEM TO BE SOLVED: To provide the storing/carrying vessel for a **semiconductor** board capable of making the air of the inside clean.
SOLUTION: The **semiconductor** board 11 is mounted on a **semiconductor** board carrier 12 having a plurality of slots capable of holding the **semiconductor** board 11. One or a plurality of detachable adsorption bodies 17 capable of **adsorbing** an organic matter in the storage carrying vessel 10 is mounted on the vacant slots of the **semiconductor** board carrier 12. After the **semiconductor** board carrier 12 mounting the **semiconductor** board 11 is mounted on a base plate 16, a cover 13 is arranged so as to cover the **semiconductor** board carrier 12. The cover 13 and the base plate 16 are fixed, and the storage carrying vessel 10 is completely sealed. The adsorption body 17 comprises a silicon wafer on which an **adsorbent** such as an active carbon or ion exchange resin is coated on the surface, or the silicon wafer having **Si-F** bonding on the surface.